

Average snowfall brings Tahoe back to its natural rim

By Jeff DeLong
TAHOE IN DEPTH

A strong and much-hyped El Nino winter will help boost levels of a drought-diminished Lake Tahoe, but experts say it's too early to claim a recovery for the famed alpine treasure.

Latest projections have the lake rising a foot or so above its natural rim at 6,223 feet above sea level by sometime in early summer as runoff from a melting snowpack enters the lake. That would be the first time the lake has risen above the rim since it dropped below it in mid-October 2014, with lake levels dipping as low as 1.63 feet beneath the rim early last December.

But Tahoe will still be far from full. When Tahoe's at its maximum legal limit, the Tahoe City Dam stores an additional 6 feet of water above the rim for downstream use, including the municipal needs of the Reno area.

And by late next fall or early winter, the lake's rising-water gains will have reversed as evaporation rates accelerate and water levels drop below the rim again.

So while the winter of 2016 helped

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Photo: AECOM

A Fresh Start

for the Upper Truckee River Marsh

The Upper Truckee River Marsh once stretched into the Tahoe Keys (upper left). A new plan to restore the remaining marsh in the lower two-thirds of the photo will allow sediment carried by the river to be filtered out before it reaches the lake.

Conservancy leads project to restore water-filtering wetland

By Jim Sloan
TAHOE IN DEPTH

One of the largest restoration projects ever undertaken in the Tahoe Basin has received initial approval and, when completed, will significantly reduce the volume of clarity-reducing sediment reaching Lake Tahoe.

The project, led by the California Tahoe

Conservancy, will return the Upper Truckee River to its naturally created channels and restore the Upper Truckee River Marsh, improving rare wetland habitats for a variety of fish and wildlife species.

The project will restore more than 500 acres of a 1,600-acre marsh that once served as a natural filter for the river. Almost half of the marsh was filled in and

carved up when the Tahoe Keys were built in the late 1950s and 1960s. The Upper Truckee River was rechanneled around the development, effectively bypassing the remaining marsh and giving river-borne sediment a clear, unimpeded path to the lake.

As a result, the Upper Truckee River

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Summer’s around the corner

This summer, the Tahoe Basin will hit a major milestone. It was two decades ago that President Bill Clinton and Vice President Al Gore descended on the shores of the lake for our first Presidential Forum. They — like all of us — were amazed at the splendor of the lake and committed substantial federal resources to protect and restore it. Annual summits have continued over the last 20 years, bringing Cabinet secretaries, members of Congress, governors, and other important officials to Tahoe to review progress on restoration and discuss remaining challenges facing the Tahoe Basin. To commemorate this auspicious occasion, the Tahoe In Depth team is fundraising to publish a special retrospective of the collective work accomplished since the late ‘90s and the emerging threats in the 21st century which we must address going forward. Our annual summit this year, hosted by U.S. Sen. Harry Reid, will amplify these themes. If you’re interested in receiving a commemorative copy of Tahoe In Depth in your inbox later this summer, we’d welcome your support. For more information on subscribing or donating to Tahoe In Depth, turn to page 22. We couldn’t produce Tahoe In Depth without the generous support of readers and underwriters, so thank you very much. Enjoy this fabulous season at Tahoe.



— Julie Regan
Executive Editor

Tahoe In Depth

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A group is working to improve the AI Tahoe area, making it safer for pedestrians, cyclists, and students trying to get to school.

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Photo: Rick Cooper, CC BY 2.0

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After three years of construction, the environmental and aesthetic improvements in Kings Beach are expected to be completed this fall.

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Too much fertilizer

Most people apply too much fertilizer to their lawns, and the result can be too many nutrients washing into Lake Tahoe, fueling the unnatural growth of algae. Here’s how to keep a nice yard without harming the lake.

Scientists analyzing effect of crayfish

Planted as fish food, hungry crustacean may be affecting Tahoe's clarity

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

Researchers with the University of Nevada, Reno are working to better understand the impacts that a small but voracious non-native freshwater crustacean is having in Lake Tahoe and Crater Lake, two of America's deepest, clearest lakes.

Public agencies deliberately introduced signal crayfish into Lake Tahoe and Crater Lake in the early 1900s to help feed stocked sport fish popular with fishermen. The crayfish may be doing more than altering food webs in the two lakes; they may be affecting their famed water clarity.

An omnivore that can feed on both plants and animals, signal crayfish rapidly established themselves throughout Lake Tahoe's nearshore waters, negatively impacting native invertebrate and non-game fish species.

At Crater Lake, signal crayfish did not start to expand beyond a couple of sites until the mid-2000s. They are now spreading and taking over the habitat of the Mazama newt, an endemic amphibian found nowhere else in the world. It was the top predator in Crater Lake before fishes and crayfish were introduced into its waters.

"From 2008 to 2014 crayfish increased their range in Crater Lake. We are now finding crayfish where we used to find Mazama newts," said John Umek, a freshwater ecology researcher at University of Nevada, Reno.

The spread of crayfish and the corresponding decline in newt populations raised questions for researchers: Is there competition between the two species for habitat or food? Or are crayfish eating newts when they can?

"Turns out it is all of the above," Umek said. "We found they prefer the same substrate areas, rocky boulder areas where there is protection to hide from predator fish and ultraviolet light. They are also eating similar food sources, so we do see competition for food and habitat."

Researchers suspect climate change is helping crayfish expand in Crater Lake. Increased water temperatures give crayfish more energy to forage and



After their introduction in the early 1900s, signal crayfish at Lake Tahoe quickly established themselves in the nearshore environment.

reproduce, and as crayfish populations reach their maximum in one site, they head out to colonize new areas.

"As crayfish populations expand in nearshore areas in Crater Lake, we see the area for newts getting smaller and smaller. There's a lot of discussion about what we can do to impede or slow down crayfish in the nearshore and hopefully provide refuge for these newts," Umek said.

One potential area of refuge for the newts is the small seasonal pools around the shore of the lake, formed by rock slides and avalanches. "We have not found crayfish in any of those pools, so one idea is to do more research into how newts are using those pools and make sure we keep crayfish out of those areas," Umek said.

Crayfish are impacting more than newts at Crater Lake. Researchers have seen a seven- to eight-fold decrease in benthic

(deep water) invertebrate densities in the areas where crayfish have expanded. As crayfish reduce those populations, researchers are seeing an increase in algae biomass along the shoreline, a result of invertebrates no longer consuming algae at the normal rate.

Umek is also working to understand how crayfish are impacting benthic invertebrate populations and algae growth at Lake Tahoe, as well as how crayfish are impacting non-game nearshore fishes such as the redbside shiner, Tahoe sucker, and Tui chub, since they also compete for food sources and habitat.

"From other research in our laboratory at the University of Nevada we've seen a reduction in benthic invertebrates in Lake Tahoe, almost a 60 percent decline from research



Photo by John Umek, University of Nevada, Reno

A researcher hauls in traps filled with signal crayfish from Lake Tahoe.

done in the 1960s and 1970s compared to research done in 2009-10," Umek said. "So we're curious how the reduction in benthic invertebrates may increase algae on rocks and sand in the nearshore. Are crayfish helping increase the amount of algae as they reduce invertebrates that eat the algae? Or maybe the increase of algae comes from the addition of nutrients to the nearshore that increase the numbers of crayfish as they graze on this plant material in the nearshore environment."

Understanding the impacts that signal crayfish are having and managing the impacts is a goal for both lakes.

Now that crayfish are well-established in the lakes, it would be extremely difficult to eradicate them. That's in part because young crayfish hide in rock crevices for their first year to avoid predation, making them difficult if not impossible to trap.

"Even if we went in and trapped heavily, we may remove certain age classes, so we would need to have a continual removal of crayfish," Umek said.

A few years ago, California and Nevada changed their policies to allow the private harvest of crayfish from Lake Tahoe. Working with private business and encouraging them to remove crayfish could be an opportunity to facilitate the continual removal over time.

"Visitors expect to see clear, blue nearshore areas at Tahoe, and if crayfish are impacting algae biomass in those areas, that could have impacts not only for the ecology of the lake, but the economy as well. People don't want to see these large algae blooms," Umek said.

Tom Lotshaw is public information officer at TRPA.

Restoration will drastically reduce sediment reaching Lake Tahoe

Continued from page 1

has been the largest source of stream-borne, fine sediment pollution to the lake for decades.

“Many of the environmental protections that have been instituted in the Tahoe Basin over the years were prompted by what happened to the Upper Truckee River Marsh 50 years ago,” said Darcie Goodman-Collins, executive director of the League to Save Lake Tahoe.

“It was after the environmental damage done to the marsh by the development of the Tahoe Keys that people started seeking solutions to prevent further degradation of the lake.

“This project will have major positive impacts on lake clarity for generations.”

Project began years ago

Although the Tahoe Regional Planning Agency and the Conservancy board only just recently approved initial plans to restore the Upper Truckee River Marsh, environmental officials have been planning the restoration for 30 years.

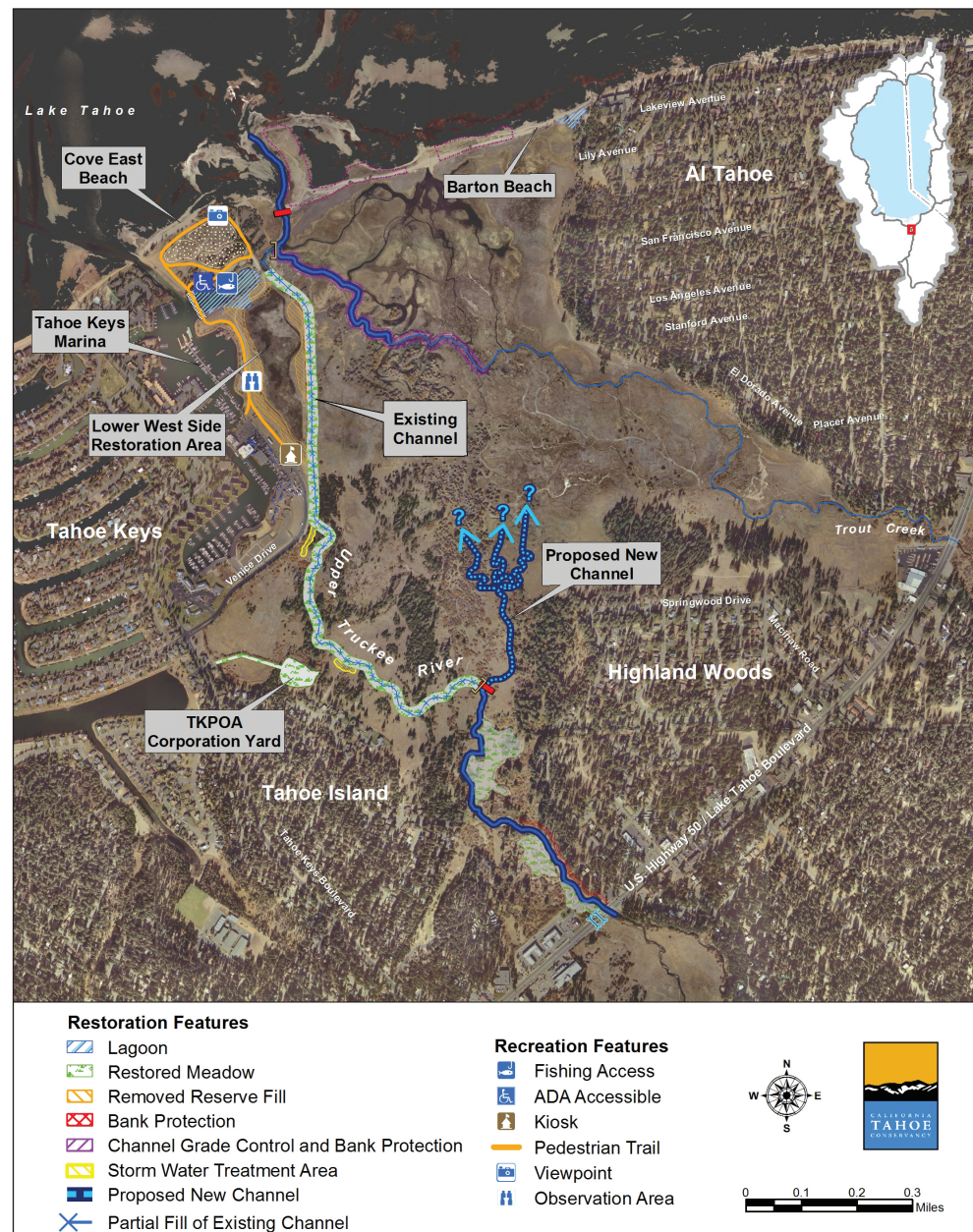
Since January 1988, the Conservancy has spent about \$14 million to acquire several parcels in the marsh that total 525 acres. Initial studies on how to restore the marsh began a few years later.

In 2001, the Conservancy completed a 12-acre restoration on the west side of the marsh and then focused on finding a way to restore the entire marsh.

A variety of public meetings, field trips, and design charrettes were conducted over the years. The Conservancy fully explored five different environmental alternatives, rather than just a single alternative, in its environmental analysis.

“We wanted to make sure the public comments were considered fully, so a preferred alternative was not selected prior to environmental review,” said Scott Carroll, the Conservancy’s project manager.

“Instead, we analyzed all five alternatives equally and used public comments received on the draft environmental document to select the preferred alternative.”



Why this project is significant

Lake Tahoe’s clarity has been declining since measurements began in 1968, primarily the result of fine sediment particles in the water. The Upper Truckee River is the largest watershed sediment contributor to the lake, discharging about 2,200 metric tons of suspended sediment and 1,100 metric tons of fine sediment annually. This project will restore the natural filtration qualities of the Upper Truckee River Marsh, greatly reducing the sediment reaching Tahoe.

The Upper Truckee River watershed, which extends from the top of Red Lake Peak to the Tahoe shoreline, has been undergoing environmental changes for the last 150 years. During the Comstock era, forests around Lake Tahoe and within the Upper Truckee River drainage area were logged for timber to build mines. Roads were built and meadows were grazed extensively. Later, as tourism became an important focus of the region, floodplains and meadows in the watershed were filled in and converted to an airport, golf courses, subdivisions, and roads.

What will the project look like?

The plan that was eventually adopted is deceptively simple: The Upper Truckee River will again be reconstructed. This time, however, instead of being rerouted to make a straight beeline for the lake – the way it was in the 1950s – the river will be diverted into the middle of the marsh and allowed to create its own smaller channels to the lake.

The Upper Truckee River once naturally flooded and spread out over the marsh, allowing sediment to settle and filtering the water before it entered the lake. When the Tahoe Keys were built, the new channel cut for the river was too large and too straight to allow for natural flooding, which meant all manner of upstream erosion, sedimentation, and urban runoff flowed unfiltered into the lake.

The plan now is to build a small pilot channel to reconnect the river to its historical channels and lagoons. The river will thus be allowed to flood the marsh again and create its own patterns as it spreads out. The result will be cleaner water entering Lake Tahoe, a rejuvenated ecosystem with flourishing natural marsh vegetation, a rising water table, and restored habitat for fish and other wildlife.

The plan includes a recreation element as well. The informal trails on the east side of the marsh will be allowed to remain. On the west side, a previously constructed Conservancy trail to Cove East Beach will be enhanced and lengthened, and viewing areas, a fishing platform, and a kiosk will be constructed.

The project will stabilize more than 10,000 feet of river channel and cut

down on channel erosion by nearly 60 percent, annually reducing fine sediment reaching the lake by 317 cubic yards—about 31 dump-truck loads.

Some of these improvements – such as the rewetting of the marsh surface and reductions in river channel erosion – will occur almost immediately; other improvements, like restoring aquatic habitats and vegetation, may take several decades to fully develop.

The next step is to develop the engineering and specifications and find funding for the \$10 million project.

Funding will come from federal, state, local, or private sources, said Chris Mertens, an associate environmental planner for the Conservancy, and the Conservancy hopes to start the project in 2018 or 2019. Construction is expected to last three to four years.

Group works for safer mobility options

First project takes aim at improving Al Tahoe area with new design

By Gavin Feiger, Rebecca Bryson, and Steve Teshara

COMMUNITY MOBILITY WORKGROUP

The next time you drive on Al Tahoe Boulevard between Johnson Boulevard and U.S. Highway 50 in South Lake Tahoe, imagine you are a 13-year-old walking to school.

You are perched on a small piece of sidewalk, looking across five lanes of traffic with cars zipping by just inches away. You're waiting for an opening to race across the street, but vehicles keep shooting out of multiple driveways. At the first gap you see, you dash across the road.

Later, coming home, you stop at the intersection of Al Tahoe and Highway 50. You need to cross the street to get to the bike path, but again it's a chaotic scene as cars, bicyclists, and pedestrians all rush around trying to avoid each other.

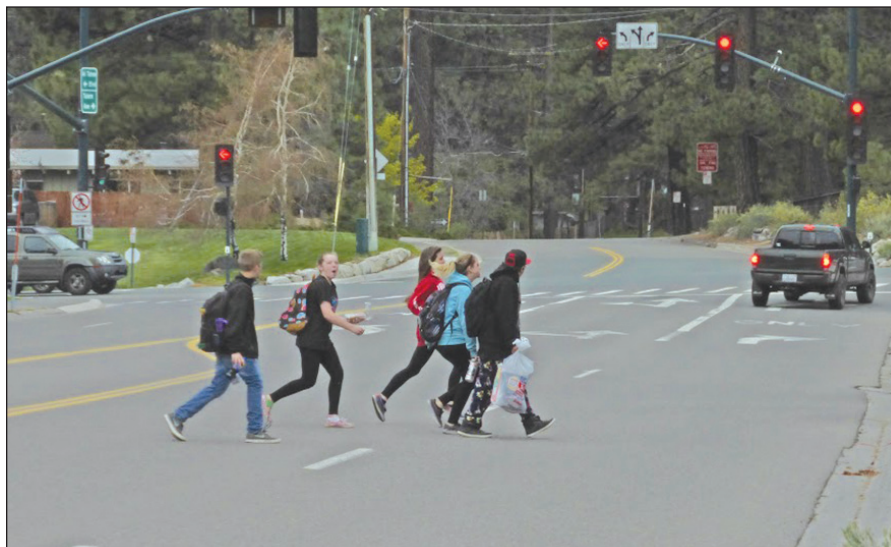
These problems at Al Tahoe — which include a lack of sidewalks, bike lanes, crosswalks, and "School Zone" signs — brought together concerned parents, mobility advocates, the Lake Tahoe Unified School District, City of South Lake Tahoe, Tahoe Regional Planning Agency, Caltrans, and local businesses to look for safer options around the South Tahoe Middle School.

Empowering the community

Volunteer advocates from the Community Mobility Workgroup stepped forward to create action. The mobility workgroup includes over 30 Tahoe residents and representatives of organizations, local jurisdictions, and agencies. Their goal is to improve bicycle and pedestrian safety, accessibility, and mobility.

The group joined with the school district to secure two grants from the TRPA On Our Way grant program. This funding supported community outreach that the volunteers leveraged with their own time and commitment. The middle school was the first area of focus.

Over 1,000 people were reached through meetings with students, parents, and school administrators; an online survey; and two community workshops. Twelve potential projects,



Students on their way to school. A new project will make it easier for people to move around the Al Tahoe area.

including multiple alternatives for each project, were developed into a "connectivity plan." The plan team then prioritized the alternatives using detailed criteria influenced by public input and feasibility.

The Al Tahoe Boulevard Safety and Mobility Enhancement Project emerged as the top project. With support from the school district board, Superintendent James Tarwater, and project advocates, the South Lake Tahoe City Council approved the city's role as lead agency for project construction. In 2015, the city applied for and was awarded \$2.1 million in funding from the California Active Transportation Program.

Improvements along Al Tahoe will include connecting the shared-use path from Johnson Boulevard to Highway 50, reconfiguring the roadway to add bike lanes and fewer vehicle lanes, and active transportation designs at the intersections of Highway 50 and Johnson Boulevard. The project is expected to begin construction in 2017.

"The proposed improvements to Al Tahoe Boulevard are long overdue," said Jim Marino, assistant director of public works for the City of South Lake Tahoe. "The safety of the children, school zone, and commercial zones are paramount."

More improvements to come

Development of the South Tahoe

Middle School Connectivity Plan accelerated work to complete a district-wide Safe Routes to School Master Plan. The mobility workgroup continued its outreach and advocacy role.

The school board, City Council, and the El Dorado County Board of Supervisors have all adopted the master plan. This will position more projects for grant eligibility.

The success of the Al Tahoe Safety and Mobility Enhancement Project underscores the importance of community action in collaboration with local governments and agencies. Both the South Tahoe Middle School Connectivity Plan and Safe Routes to School Master Plan provide a menu of additional mobility improvement projects to prioritize and implement as collaborators continue to work toward a safer, more enjoyable community for all types of lifestyles.

Learn more about the connectivity plan, Safe Routes to School Master Plan, and ongoing community mobility improvements in the Tahoe region on the Community Mobility website at www.sustainabilitycollaborative.org/cm.

Gavin Feiger, Rebecca Bryson, and Steve Teshara are the co-chairs of the Community Mobility Workgroup of the Lake Tahoe Sustainability Collaborative. They work on mobility, educational, and sustainability efforts throughout the Tahoe Region.

El Nino winter helps Tahoe move up to rim

Continued from page 1

significantly, Lake Tahoe still has a way to go to overcome the impacts of four previous years of drought.

"We're definitely not at a point where we can say it's a recovery. Hopefully it's the start of one," said Federal Water Master Chad Blanchard, whose office was established by the federal courts to manage the waters of Lake Tahoe and the Truckee River.

"It's been OK. Obviously we're going to get back over the rim," Blanchard said. "By the end of this year we will be kind of back where we started but at least we're not going back into the hole again. I wouldn't call this a recovery but I'd call it a reprieve."

When the lake dropped below its rim in fall of 2014, it was the first time it had done so since the fall of 2009, Blanchard said. But the situation has been far worse. During the lengthy drought that lasted from 1987 to 1994, the lake was below the rim for a span of nearly four years, dropping to its lowest level in history at 2 ¾ feet below the rim in November 1992, Blanchard said.

How quickly the lake can recover was demonstrated in 1995, when a heavy winter boosted water levels by 6 feet, ending that lengthy drought.

Many hoped for a repeat this past winter, with attention focused on a powerful El Nino. The weather phenomenon, characterized by warm ocean surface temperatures in the eastern Pacific, has brought some big winters to Tahoe in the past.

If it wasn't a blockbuster, this El Nino winter did perform, bringing decent snowfall to Tahoe and the Sierra following a record dry winter in 2015. Tahoe's spring snowpack ended at slightly above normal levels.

"It was kind of near average and with an average year you can make up a lot of ground," said Kelly Redmond, a climatologist with the Desert Research Center in Reno. "It just seemed kind of luxurious even to get a near-average year."

When it comes to filling Tahoe, the coming winters will make the difference, Redmond and Blanchard agreed.

"A couple more of these years would help," Blanchard said. "A really big one would really help."

Jeff DeLong is a Lake Tahoe resident and freelance writer specializing in environmental and natural resource issues.

Know the rules, avoid penalties: local bear ordinances

Placer County: Chapter 8.16 requires bear-resistant, garbage-can enclosures on new residential construction or additions of more than 500 square feet of living space, for portions of Placer County above 5,000 feet elevation. Bear-resistant, garbage-can enclosures may also be required if the garbage collection or storage site has been inspected and determined to be a bear access problem.

Douglas County: Under Title 6.32, “A responsible party must not allow a bear to gain access to garbage.” Violations of this chapter will be punished by the following progression of sanctions:

- For the first incident, a verbal or written warning will be issued to the responsible party.
- For a second incident within two years from the first incident, the responsible party will be required to purchase or construct a bear-proof collection bin, container or structure and install within 90 days of the incident. A responsible party that fails to purchase or construct a bear-proof collection bin, container or structure within 90 days will be cited and, if convicted, punished for an infraction.

Incline Village: All solid waste must be kept free from pests and vermin, including but not limited to dogs, bears, coyotes, and raccoons, by means of storage location, times of placement, and removal from curb, or use of approved wildlife-resistant containers or a bear shed box.

South Lake Tahoe: Under City Code 4.150.150, residents must “take adequate precautions to prevent ready access to the waste by animals. ... Further, at the direction of the city manager, or the city manager’s designee, the following corrective enforcement actions are available (including) mandating bear-proof refuse containers for repeat violators of single-family residences and multifamily residential properties not using safety-approved dumpsters.”

El Dorado County: Ordinance 4600 requires the installation of bear-resistant, garbage-can enclosures with construction of all new residential units. Bear-resistant, garbage-can enclosures may also be required if the garbage collection or storage site has been inspected and determined to be a bear-access problem.

Stash that trash and food

Simple steps can protect bears, other animals, and humans

By Devin Middlebrook

TAHOE REGIONAL PLANNING AGENCY

Bears, raccoons, and other wildlife in search of an easy meal are increasingly visiting residential areas in the Tahoe-Truckee region. It may not always be obvious, but a bag of garbage, bowl of pet food, or plate of leftovers left outside your home or vacation site can harm wildlife.

Of all the wildlife and human interactions, encounters with bears are becoming the most common. The Tahoe Basin and surrounding foothills are prime black bear habitat. Forty percent of the California black bear population inhabits the Sierra Nevada. A typical wild bear diet consists of berries, grasses, plants, nuts, roots, honey, insects, and small mammals. In urban areas adjacent to undeveloped wildlands, bears are optimistic scavengers and are attracted to easy food sources such as improperly stored human food, pet food, birdseed, and garbage. Once a bear has discovered an easy source of food, they will remember that location and return on a regular basis.

Bears that grow accustomed to people can become complacent and lose their fear of humans. This is referred to as human habituation, and it often forces wildlife officials to kill the bear because of the threat it poses to humans. For residents who don’t take steps to discourage bears, these interactions can cause expensive property damage, result in fines from local jurisdictions, and pose dangers to visitors and neighbors.

“Residents and visitors living in bear country have a responsibility to the wildlife whose habitat we share, and also to human neighbors. Improper storage of food or garbage is attributed to 95 percent of all human-bear conflicts,” said Madonna Dunbar, resource conservationist with the Incline Village General Improvement District. “By removing the attractants, we can reduce risk to both people and wildlife. Preventing access to garbage and food is the easiest way to reduce the risk of human-bear interactions.”

The most secure way to store garbage at your home is by installing a bear box, a large metal enclosure to house trash cans. While the boxes cost an



A young bear at Taylor Creek, Lake Tahoe in October 2012.

average of \$1,000, they offer the highest level of security from bears. To help homeowners, some local jurisdictions are now offering programs to subsidize the cost of purchasing bear boxes.

Placer County offers no-interest loans for homeowners in Placer County east of Colfax, including Lake Tahoe. Eligible homeowners can apply for a five-year, interest-free loan that homeowners repay through a \$22 per month surcharge on existing quarterly garbage bills.

Learn more about this program at www.waste101.com/bear-aware/.

The Incline Village General

Improvement District offers a rebate for homeowners who have an approved bear box installed after July 1, 2015.

The rebate is valued at \$150 and is available for single-family and multifamily homes (without dumpster trash service). To learn more about this program, visit www.yourtahoeplace.com.

No matter where you live in Lake Tahoe, it is important to do your part to protect native wildlife by properly storing your garbage, food, and other attractants.

Devin Middlebrook is an environmental education specialist at TRPA.

National Forest land beyond the backcountry

1980 bill gave USFS funds to purchase sensitive neighborhood parcels

By Karen Kuentz and Brian Garrett
U.S. FOREST SERVICE LAKE TAHOE BASIN
MANAGEMENT UNIT

Who doesn't like vacant lots near their home? Open space in neighborhoods reduces density and noise, and trees are nicer to look at than houses or other development.

But why are there so many vacant parcels in the Lake Tahoe Basin?

Many people know that much of the land in the Tahoe Basin is managed by the U.S. Forest Service. But what might surprise people is how much of that land is located in neighborhoods.

The "Lake Tahoe Forest Reserve" was established in 1899 with 37,000 acres. The Lake Tahoe Basin Management Unit (LTBMU) now manages approximately 154,000 acres, with the additional 123,000 acres added to the forest through acquisition by purchases or donations.

Most national forests in the U.S. were designated by presidential declaration, and many have had small additions over time. But 76 percent of the forest land in the Tahoe Basin has been acquired.

The acquisition process

In 1980 Congress passed the Santini-Burton Act, which declared that the environmental quality of the Lake Tahoe Basin was jeopardized by overdevelopment of sensitive lands and that the unique character of the Lake Tahoe Basin was of national significance deserving further protection. The act directed the Forest Service to acquire environmentally sensitive land in the Lake Tahoe Basin, restore watersheds on acquired National Forest lands, and administer erosion-control grants to local government.

Wetlands, stream environment zones, and steep and fragile lands were eligible for purchase under the act. Over 3,500 parcels (about 3,300 of which are urban lots) around Lake Tahoe totaling about 14,000 acres have been acquired under the authority of the Santini-Burton Act.

There have been many other acquisitions through the years. For example, prior to the 1960s, there was no federal lakefront land. Through acquisitions, approximately 18 percent



Photos: U.S. Forest Service



Urban lots provide open space areas within neighborhoods, cutting down on urban runoff and providing neighboring properties with reduced noise and increased privacy. About 3,300 urban lots were acquired by the Forest Service under a 1980 law designed to protect Lake Tahoe from the development of environmentally sensitive lands.

of the 72-mile shoreline is now federally owned. These lands include Pope Beach, Nevada Beach, Baldwin Beach, the Tallac Historic Site, and Meeks Bay.

Community benefits

Urban lots provide open space areas of natural forest vegetation within developed communities. These forest areas reduce and filter the noise associated with everyday human activities, providing quieter, more enjoyable living conditions and recreational experiences. Additionally, undeveloped urban lots reduce the scenic and visual impacts of urbanization by providing forested areas that help screen and blend development into the natural surroundings. Neighborhoods with publicly-owned urban lots are more desirable to live in, and often have a corresponding positive impact on property values.

Managing public lands

The Forest Service Homeowner Defensible Space and Fuels Reduction Stewardship programs allow homeowners adjacent to National Forest lands the opportunity to work with the Forest Service to extend defensible space onto federal land in order to meet recommended clearance standards. Defensible space treatments on or adjacent to private property can reduce the speed and intensity of a wildfire, improving forest health and providing increased protection to communities. Crews will be working into the fall.

For more information on either program, contact the LTBMU Hazardous Fuels program at 530-543-2759.

Karen Kuentz is a realty specialist and Brian Garrett is the program manager for the Urban Forest Management program for the U.S. Forest Service Lake Tahoe Basin Management Unit.

How urban lots help Lake Tahoe's environment

By acquiring undeveloped urban parcels that are environmentally sensitive, the Forest Service, the California Tahoe Conservancy (CTC), and the Nevada Division of State Lands helped reduce the negative impacts of development on Lake Tahoe's watersheds. Both states have acquired sensitive parcels in neighborhoods as well, with the CTC owning the bulk of the lots at 5,000 parcels.

These undeveloped parcels provide natural absorption of rain and snow, can slow the flow of water between developed areas, and allow construction of erosion-control structures.

A study in 2002 by the University of Nevada, Reno and UC Davis found that the presence of undeveloped urban parcels helps retain important wildlife habitat characteristics that may not exist in similarly developed landscapes. This is important because the Lake Tahoe Basin contains significant habitat for wildlife, but much of it has been reduced, fragmented, and degraded. Even in areas of less-intensive development, the natural landscape has been significantly modified by recreational activities, roads, and trails. Undeveloped urban lots help alleviate some of those challenges.

The tale of two neighborhoods

This 2002 map (top right) shows the parcel ownership pattern of approximately 30 acres in the North Upper Truckee area



on the South Shore. Green-shaded parcels are USFS-acquired lots, blue-shaded parcels are California Tahoe Conservancy-acquired lots, and the white parcels are privately owned. The small black squares represent developed parcels. Almost 50 percent of the lots are undeveloped public land.

This second map (at bottom) shows what the same North Upper Truckee area would look like with all available parcels developed. This neighborhood would have significantly less forest to screen development and filter noise, a substantial increase in traffic, and would be more urban.





A family takes advantage of the bike path near Camp Richardson on the South Shore.

Transit, trails, and technology: Updating the transportation plan

The transportation network provides one of the biggest opportunities we have to make real changes at Lake Tahoe. An estimated 72 percent of pollutants impacting Tahoe's clarity are the result of roadway and developed-area runoff, and the transportation sector accounts for 30 percent of greenhouse gas emissions in the Tahoe Basin. In addition, the design of our roadways, transit systems, and active transportation network directly influence the economy and quality of life in our communities.

From protecting the lake to attracting unique, sustainable businesses, to simply making a day at Lake Tahoe easy and carefree, the transportation system plays a bigger role than you might expect. How do Tahoe's roads, buses, and bike trails work for you?

The newly approved Active Transportation Plan provides a bold vision for transforming Tahoe's streets into attractive, usable spaces for all users. But there is more to do. TRPA and its partners are currently looking at how transit, biking, walking, roadways, and new technologies fit together through the update of TRPA's Regional Transportation Plan. This plan will provide direction for the investments that will be made in our transportation system over the next 20 years.

Where do you want to see investment? We will be looking for your input using simple online tools, as well as in-person engagement, starting in May 2016. To learn more and make sure you don't miss these important and fun ways to share your ideas, sign up for updates at www.LinkingTahoe.com.

Making the right connections

Linking paths, bike lanes will help get Tahoe travelers out of their cars

User Comfort



1% Experienced and confident
9% Casual and somewhat confident
60% Interested but concerned



lower stress tolerance

higher stress tolerance

Sixty percent of the population needs to be reassured that they can get where they want to go safely and conveniently.

By Morgan Beryl

TAHOE REGIONAL PLANNING AGENCY

How many times have you thought about hopping on your bike or taking a walk to run some errands or head to work — but are unsure how to get to your destination safely?

I lived next to a path that took me almost directly to work, and I never used it. I had a million excuses. It would take too much time, I would get sweaty, I'd have to carry all my things on my back, and I just wasn't quite sure how to get there once the path ended. Then, the first time I rode my bike to work, I couldn't believe how easy, fun, and fulfilling it was.

These are the questions many people ask themselves. This is the "interested but concerned" bike rider: someone who needs to be reassured that they can get where they want to go safely and conveniently.

National surveys indicate that 60 percent of the population is in this category. If we really want to see less traffic on our highways — which in Tahoe act as our main streets — we need to provide the right infrastructure. That means we need safe routes that connect people from origin to destination by balancing our roadway system. The

community has told transportation planners that its No. 1 priority for better biking and walking in Tahoe is connectivity, and we are listening.

Tahoe already has many great paths and should be proud of the 35 miles of active transportation infrastructure constructed since 2010. The region is now entering a new phase. We have some paths, we have some bike lanes, we have some sidewalks. Now it's time to connect all of these facilities into one cohesive network, update them to best practices, and figure out how we can maintain what we build year round.

The 2016 Linking Tahoe: Active Transportation Plan was approved in March by the TRPA Governing Board and focuses on identifying priority intersections for improvement, supplying a toolkit of design and maintenance strategies that are appropriate for Tahoe, and creating policies and actions to help achieve community goals.

During the update to the Active Transportation Plan, we asked community members where they ride, what intersections work for them as pedestrians, what intersections do not work, and why. We asked what routes they use on the bus in combination

with their bikes, and what kinds of infrastructure would encourage them to walk, bike, skateboard, or inline skate instead of drive. A community outreach report analyzed all of this survey information and resulted in the Lake Tahoe Complete Street Resource Guide — an element of the Active Transportation Plan and a toolkit for building what the community wants. We want crosswalks so parents can walk their children to school. We want bike racks so we can park our bikes at a restaurant for lunch. We want continuous buffered bike lanes so we can get to work fast and feel safe while we're doing it.

And that is the goal of the 2016 Active Transportation Plan: to provide the information, resources, and tools our partners need. Local agencies want to create the type of place you want to live in, and they need your help. Give them your ideas, work with project development teams, and help fund projects that get you and Tahoe's visitors out of their cars. Tahoe and your body will thank you — because we'll all benefit by being healthier, economically vibrant, and by spending more time outside.

Morgan Beryl is an associate transportation planner at TRPA.

Maritime museum on the move

New location in Tahoe City gives attraction more room to explore history

By Jim Sloan

TAHOE IN DEPTH

You would expect a lake as famous as Tahoe to have a rich maritime history.

But it's hard to imagine just how extensive that legacy is without visiting the Tahoe Maritime Museum.

With a collection of more than 30 vessels ranging from salvage steam launches to luxurious '60s powerboats, as well as a vast collection of engines, water-sports gear, and archival documents, the museum has been growing steadily since it was first launched by five volunteers 28 years ago.

And now it's growing again.

This spring and summer the museum will complete its move from Homewood, its home since 2008, to a 10-acre site in Tahoe City that previously housed the Tahoe Tree Company. The move is the first formal step in the museum's goal of consolidating its far-flung collections and introducing new programs, classes, and exhibits to what promises to be a bustling campus for learning, skill-building, and entertainment.

"It's a very big project," said Lora Nadolski, who became the museum's executive director in 2013 after a stint at the Antique Boat Museum on the Saint Lawrence River in Clayton, N.Y. "We're excited, but we have our work cut out for us getting our new campus ready."

A little history

The Tahoe Maritime Museum's collection of artifacts has grown dramatically in recent years. Early on, the museum was able to store old boats and other equipment that weren't on display in a storage facility in Truckee. But the museum quickly outgrew that 4,000-square-foot space and moved to a warehouse three times larger in Reno. When they filled that unit up, museum board members started talking about finding a larger property in the Tahoe Basin.

"We would open up the warehouse once a month so people could get in and look around, but people were telling us that they didn't want to go all the way to Reno," Nadolski said. "We needed larger facilities here at the lake."



Photo by Tahoe Maritime Museum

The move to Tahoe City will allow the museum to display its boats in one location.

Easier said than done.

Then: Serendipity. The museum's real estate agent heard that the owners of the Tahoe Tree Company were thinking about scaling back their business and wanted to sell their property. A deal was struck.

This winter, the museum operated two sites – the Homewood location and the new building in Tahoe City. In April, the Homewood location was closed and put on the market.

Expanding the facilities

The museum hopes to add three buildings to its new location to go with the existing 6,000-square-foot facility. A gallery building will be home to history and art exhibits and will have a space where children can do their own art. The gallery space in that building will be thematic and always changing, Nadolski said.

Another building would house a working boat shop, where a boatwright would complete restoration projects for the museum and people could take tours to see how the work is done. This is also likely to be where the public can take classes on building wooden stand-up paddleboards – a class the museum has conducted at different locations around the lake in recent years.

A third building would be the warehouse for storing boats and machinery that aren't on formal display. The museum has more than 100 different outboard motors and

30 inboard motors as part of its collection. The existing building on the site would have a welcome exhibit, offices, meeting rooms, and facilities for hosting events.

Just as important as having adequate storage, offices, and exhibit spaces is for the museum to have a campus, where visitors can wander around and take part in a variety of different activities if they want.

"We want it to be a multilevel experience for people," Nadolski said. "It will be a museum, but we're also looking to reach out to people in new ways, such as with art and hands-on classes."

Growing archives

The new site is close to Commons Beach, where the museum holds some of its activities, and it will continue to offer its Ride Boat, which takes members and guests out on special trips. The Ride Boat will continue to run out of Obexer's Marina in Homewood near the old museum site, but the organization is thinking of adding additional ride boats elsewhere on the lake as well.

The fundraising campaign to open the Homewood site in 2008 was \$4 million. The new fundraising campaign is likely to be larger than that. The museum won't know how much it needs to raise until the architects come back with some proposed plans for renovating the 10 acres in Tahoe City.

Museum continues accepting donations of artifacts

With its boat and motor collection filling out nicely, the museum is paying particular attention these days to expanding its archives and research areas.

Museum officials are looking for documents and family-type memorabilia – old boating magazines, photos, and photo albums, for example – that help tell the story of Tahoe's nautical past. The museum's staff and volunteers are cataloging its collection into a searchable electronic database to help researchers, and are always looking for new artifacts to add to its collection. The museum has a collections committee that examines artifacts for possible inclusion in the museum's collection.

"We're still a young museum," museum Executive Director Lora Nadolski said, "but we have a big story to tell."

Details on museum

Starting Memorial Day weekend at the Tahoe City location (401 West Lake Blvd.) the museum will be open Thursday through Tuesday from 10 a.m. to 4:30 p.m. Admission is \$5 for adults; children 12 and under, members, and active-duty military personnel are free.

Exhibits

This summer the museum will feature everything from outboard motor racing boats to unlimited hydroplanes as it celebrates the 90th anniversary of the Tahoe Yacht Club with an exhibit focusing on the history of racing on Tahoe.

Group Tours

Groups of all sizes can arrange to visit the Tahoe Maritime Museum. Group rates are offered for parties of 10 or more. Contact the admissions desk at 530-525-9253 ext. 100 or email info@tahoemaritime.org.

Field Trips

The museum provides interactive, educational, and fun field trips for visiting school or youth groups. Students get a 5- to 10-minute introduction and then participate in three or four activity stations. To schedule a field trip, call 530-525-9253 ext. 103.

For more information on events and classes: tahoemaritimemuseum.org.

Tahoe RCD program helps communities survive fire

Education and other resources offered to neighborhoods that want to become fire adapted

What does it take to be a fire-adapted community?

Fire-adapted communities are characterized by:

- Homes that are built or upgraded with fire-resistant materials
- Reduction of flammable vegetation and other flammable items around homes to create defensible space
- Members who are educated and active within the community to mitigate the risk of wildfire every year

Supported by funding from the Cal Fire State Responsibility Area Fire Prevention Fund, Tahoe RCD and its partners are ramping up this new program to help communities become fire adapted. The program helps homeowners and visitors understand their vulnerability to wildfire, adapt their habits to lower their risk, and take steps to mitigate the impact of fire on their neighborhoods. Local residents around the basin are currently being contacted in order to participate as a leader within their community to create a self-sustained network of fire-adapted communities.

The Fire Adapted Community Program intends to:

- Provide public education about wildfire and the actions that can be taken to lower wildfire risk
- Help residents establish fire-adapted communities within the Lake Tahoe Basin
- Provide support to resident leaders and be a point of contact for the public on topics related to wildfire awareness and prevention
- Act as a liaison between the Tahoe Fire and Fuels Team, fire districts, and the public
- Host events, trainings, and workshops for the public — such as Wildfire Awareness Month in June.

If you would like to find out more information or want to be a fire-adapted community leader for your neighborhood, contact the Fire Adapted Community Program Coordinator at the Tahoe Resource Conservation District at 530-543-1501.



Photo: Wildlandfire.com

A firefighting crew on the front lines of a wildland fire in the Tahoe Basin.

By Marybeth Donahoe

TAHOE RESOURCE CONSERVATION DISTRICT

The Tahoe Resource Conservation District (Tahoe RCD) is launching a new program to motivate and help communities actively lower their risk to the wildfire hazard in the Lake Tahoe Basin.

Supported with funding from Cal Fire, the Tahoe RCD is building the Tahoe Network of Fire Adapted Communities to educate locals and visitors about their vulnerability to wildfire and help them reduce their risk. In fire-adapted communities, residents, visitors, and agencies work together to protect the community before, during, and after wildfires.

The network will educate individuals about wildfire threats and provide tools to lower risk. It will leverage educational resources, promote fire district services, and act as a liaison among community members and agencies.

The goal is to create a network of people who act to reduce the wildfire risk in the Lake Tahoe Basin. Establishing fire-adapted communities is the solution to protecting people's lives and property and the environment from a catastrophic wildfire.

Due to over 100 years of fire suppression, the natural role fire plays in creating healthy forests has been altered. The accumulation of hazardous fuels has increased within the understory

of the forests. The accumulation of these fuels, weather conditions, and human behavior could lead to another catastrophic wildfire event in the Tahoe Basin, much like the previous Gondola, Washoe, and Angora fires.

Informed individuals, neighbors, and agencies lower this wildfire risk by reducing fuels and modifying human behavior. It is important for people to create defensible space around their homes and within their neighborhoods, and to take other precautions to minimize vulnerability to the inevitable wildfire threat. Fire-adapted neighborhoods work closely with local fire districts or departments to create and maintain a fire-adapted community. This network of fire-adapted communities will reduce the wildfire threat and create resilient, knowledgeable communities in the Lake Tahoe Basin.

The program needs motivated individuals to help create a Tahoe Network of Fire Adapted Communities. You can be a leader in your residential community and personal network, or help with an established effort. Here are some tips on how to get involved:

- Request a defensible space inspection from your local fire district or fire department by visiting www.Tahoe.LivingWithFire.info.
- Contact Marybeth Donahoe at the Tahoe RCD for more information

about how to volunteer. Find out about upcoming workshops and trainings and get the tools you need to raise awareness in your community. You can get the information you need to either be a leader or a member within a local fire-adapted community at 530-543-1501 ext. 114.

Catastrophic wildfire does not recognize boundaries or property lines. You can make a huge difference just by connecting with your neighbors and working together to minimize this risk for everyone. Be part of the solution, create unity and fire-adapt your community.

The Tahoe Fire and Fuels Team (TFFT) includes representatives of Tahoe Basin fire agencies, Cal Fire, Nevada Division of Forestry and related state agencies, University of California and Nevada Cooperative Extensions, Tahoe Regional Planning Agency, the U.S. Forest Service, conservation districts from both states, the California Tahoe Conservancy, and the Lahontan Regional Water Quality Control Board. Its mission is to protect lives, property, and environment at Tahoe from wildfire by implementing fuels-reduction projects and engaging the public in becoming a fire-adapted community. For more information: www.tahoefft.org.

Marybeth Donahoe is the program coordinator for Tahoe RCD's Fire Adapted Community Program.

College's transformation continues

LTCC's latest plan calls for a university center and an improved soccer field

By Jeff Cowen

TAHOE IN DEPTH

Taking a walk through the Lake Tahoe Community College (LTCC) campus today, it's hard to believe the school was founded more than 40 years ago in a converted motel. Since its relocation 20 years ago to a forested hill overlooking the Trout Creek meadow, the college has blossomed into a central component of Lake Tahoe's community and economy.

Among the campus improvements and new buildings added over the years, the college created a demonstration garden out of a creek wash that had been historically used as a borrow pit and was in need of restoration. The college and a group of dedicated volunteers have transformed the demonstration garden into a campus amenity complete with outdoor classroom, event space, and public art. Now it's a place where anyone can learn the ins and outs of gardening in the Tahoe Basin.

Today the college serves around 5,000 students annually and is embarking on new partnerships and ventures that will further improve the campus, revitalize higher education in the basin, add to the community, and bring environmental improvements. A \$55 million general obligation bond approved by voters in November 2014 is providing some of the college's momentum, while a large private donation and partnerships with other agencies are also contributing to the boon.

The college's updated college master plan includes construction of a Regional Public Safety Training Center to house LTCC's growing Lake Tahoe Basin Fire Academy, the Lisa and Robert Maloff University Center, an Environmental Studies and Sustainability Center, residential student living, and major improvements to the adjacent soccer field.

Land swap and bike routes

One of the major environmental projects that the college is helping move forward is a section of the Greenway Trail Project that would join the campus with large neighborhoods to the west via a multi-use path being constructed

from Meyers to the Stateline area. The California Tahoe Conservancy (CTC) and LTCC are preparing to swap ownership of college property on the Trout Creek meadow with a CTC parcel over the creek where a bike-pedestrian bridge is needed to connect key sections of the trail.

The college can use some bond money for bike and pedestrian improvements to and from campus, and sees the bikeway's proximity to campus as a major benefit for students and the environment. Meanwhile, the CTC would gain responsibility for maintaining a large section of Trout Creek, which would relieve the community college of a burden.

"With a campus as beautiful and central as ours, the opportunities for alternative transportation to and from the college are incumbent," LTCC President Dr. Kindred Murillo said.

University center and 4-year degrees

In late 2014, coming on the heels of voter approval for the Measure F bond, a private donor dedicated more than \$5.8 million to fund a central component of the college master plan — the construction of a University Center to house a four-year degree program on the South Shore. While no specific universities have been named to move into the new center, UC Davis, with its strong research presence on Lake Tahoe, is a potential, Murillo said. The University Center groundbreaking is scheduled for spring 2017. LTCC just hosted the president from Sierra Nevada College for a visit, and the two colleges will be discussing SNC's presence on the LTCC campus.

LTCC is also applying to the state to transform its two-year Fire Academy into a baccalaureate degree program under a pilot launched by the governor's office in 2015. To increase access to four-year degrees across California, state leaders are turning to the community college system to start offering Bachelor's degrees providing they don't compete directly with degrees offered at nearby CSU and UC schools.

Lake Tahoe Community College is also partnering with the City of South



Lake Tahoe Community College's updated college master plan includes construction of a Regional Public Safety Training Center to house LTCC's growing Lake Tahoe Basin Fire Academy, the Lisa and Robert Maloff University Center (design shown at left), an Environmental Studies and Sustainability Center, residential student living, and major improvements to the adjacent soccer field.

Lake Tahoe to expand and improve the artificial turf playfield they share on the eastern edge of the campus. In a deal being crafted by the two organizations, LTCC would pay to replace the decaying surface of the field, thus allowing the city to apply maintenance funds to the construction of two additional grass fields on city property adjacent to the main field and near Al Tahoe Boulevard.

The cooperative agreement would alleviate demand for the main field while also expanding availability of soccer fields for large tournaments to be held on the South Shore. High demand for the field as well as its use by the SnowGlobe winter music festival, has caused the need for replacement of the turf. The lighted field was meant to be part of a multi-field sports complex approved in 2001 through a recreation bond that also built an ice arena and construction and maintenance of bike trails. Use of the field by LTCC ramped

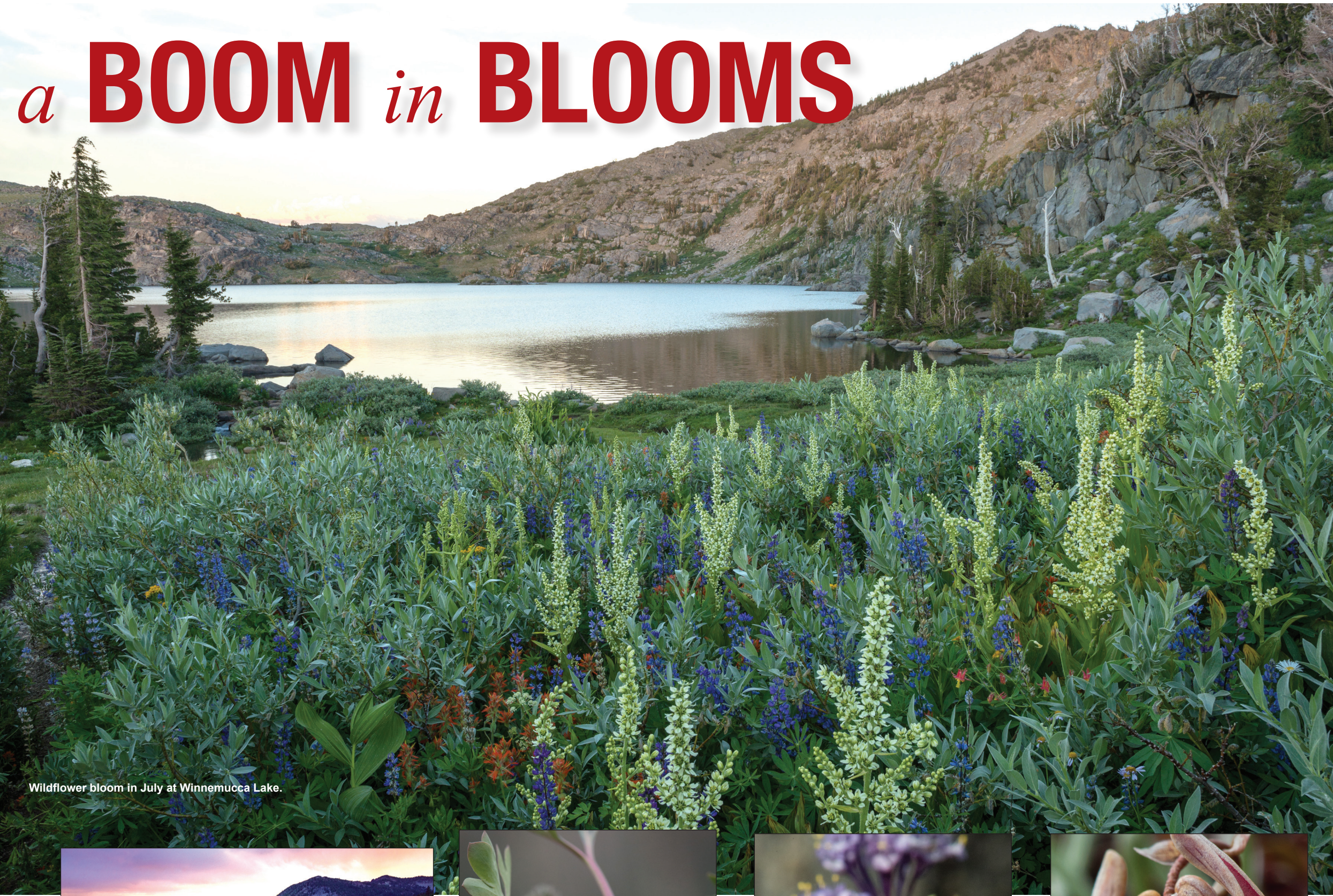
up in 2014 when it launched a men's and women's collegiate soccer program. In addition to replacing the main field surface, the college is proposing to add bleachers and other amenities that will enhance the field for all users.

"The soccer program has been a huge success and will help our college remain competitive as a destination campus," Murillo said. "The soccer fields are an important part of our future and the community's well being."

After just two seasons, the Coyote men's soccer team has established itself as a top state contender after winning its conference championship twice and making it to the state Final Four in 2015.

The women's soccer team made the playoffs its first season, and came in second in their conference. The 2015 season was a rebuilding year with a new women's head coach in place.

Jeff Cowen is a member of the Board of Trustees at LTCC.



Wildflower bloom in July at Winnemucca Lake.



Fields of white lupine off the Mount Rose Highway.



Western peony,



Mahala mat.



Steer's head.

After a wet winter, wildflowers are expected to return to Sierra en masse

Story and photos by Tom Lotshaw
TAHOE REGIONAL PLANNING AGENCY

There's no doubt the Sierra can put on a wildflower show. Snowplants, pinedrops, and phantom orchids in shady forests; monkey flowers and cinquefoil in marshes; mule's ears, balsamroot, paintbrush, and lupine carpeting mountain slopes. And a thousand others scattered throughout.

With the return of rain and snow this winter after four years of drought, many people are hoping for a banner year of wildflower displays at Lake Tahoe.

"It should be really great this year," said Will Richardson, co-executive director of the Tahoe Institute for Natural Science.

"Honestly, even last year at mid-elevation was great in a lot of spots. I saw some towering larkspur taller than I have ever seen. But the higher-elevation wildflower displays, all the stuff blossoming at once with big landscapes of color, that stuff hasn't done much in recent years."

Anticipating an extraordinary bloom this year, the Tahoe Institute for Natural Science is rolling out a Tahoe Big Year project focused on wildflowers, after focusing on birds last year.

"We want to see how many plant species we as a collective group can come up with, within the geographical bounds of our area," Richardson said. "That's all of the Tahoe Basin, around Mount Rose and Carson Pass because those are such interesting areas, and the rest of the Truckee River watershed on the California side."

Sightings will be logged through a citizen-science portal called iNaturalist and shared with other wildflower databases.

"We'll also do targeted searches for rare plants that haven't been seen in upwards of 90 years at some sites. Hopefully we can find and document some rare plants that haven't been reported in nearly a century," Richardson said.

Some of the information collected through the Tahoe Big Year wildflower project will be shared with a phenology project called Sierra Season. It tracks the timing of wildflower blooms and other natural events. At Tahoe, blooming can start in April or May and continue into September, progressing up the mountains as days lengthen and snow melts.

One of the first flowers Richardson looks forward to seeing each year is steer's head (*Dicentra uniflora*). The small flower grows in low mats on exposed hillsides, and is shaped like its name suggests, like a bleached cow skull.

"It's just this little thing really early in the season. I usually see my first one when I'm backcountry skiing," Richardson said.

"It's also the larval host for the *Clodius Parnassian* butterfly. To me that's an important part about wildflowers. They don't just exist on their own to be pretty, they are tied in with the rest of the ecology. Some of my favorite plants are my favorites for their interesting connections."

But the Tahoe Big Year includes more than wildflower hikes. Weekly email blasts will let people know about events and presentations, including speakers on a variety of topics from basic wildflower and plant identification to pollination and climate change, and workshops on gardening with native plants.

"With the Tahoe Big Year on birds, one of our goals was to bring the community of nature enthusiasts together. That was one of the biggest successes. It was a great opportunity for people to learn more and a great opportunity for us to learn from all of the people going out. So the state of knowledge will be served, everyone's individual knowledge will grow, and the community of people who like to look at wildflowers will come together," Richardson said.

More information about the Tahoe Wildflower Big Year, including information on wildflower hikes, plant identification, public talks, and other resources, is available online at tinsweb.org.



Marsh marigolds at Carson Pass.

Tom Lotshaw is public information officer at TRPA.



Fanny Bridge revitalization to begin this summer

By Carl Hasty

TAHOE TRANSPORTATION DISTRICT

Construction is scheduled to start this summer on Tahoe Transportation District's Fanny Bridge Community Revitalization Project on State Route 89 in Tahoe City, with completion in summer 2017.

The project will reduce traffic congestion, improve pedestrian and cyclists' safety, implement environmental improvements, and contribute to the city's overall economic vitality while maintaining its distinctive character. By providing a walkable and bikeable area, the transportation district is hoping residents and visitors will be inclined to get out of their cars and explore the community.

The project also includes two safety evacuation routes for West Shore residents and the North Tahoe Fire Protection District. What's more, the project hopes to reduce emissions from idling traffic and cut down sediment-laden runoff by upgrading the area's stormwater treatment system.

Set at the intersection of state routes 89 and 28 at the northwest corner of Lake Tahoe, the project will replace the 87-year-old Fanny Bridge, add a new two-lane bridge similar in size over the Truckee River west of Tahoe City, and add three roundabouts – one at the intersection of state routes 89 and 28 and one at either end of the new alignment.

This summer's phase will include the construction of the western and eastern roundabouts and the new Truckee River Bridge. Once opened, this will create a new alignment for thru traffic for travelers heading north and south. This alignment is expected to be open in summer 2017 as work begins on the second half of the project – the new Fanny Bridge, the roundabout at the 89 and 28 intersection, and complete street enhancements to the portion of "old 89," which will become a local road.

Funds for the project include \$30.6 million from the Federal Lands Access Program, \$4.9 million from the California Transportation Commission Active Transportation Program, and \$3.7 million from Placer County. The community has been involved in the design phase since the funding was secured. For more information or updates, visit www.FannyBridge.org.

Carl Hasty is the district manager for the Tahoe Transportation District.

TRPA honors Spirit Award winners

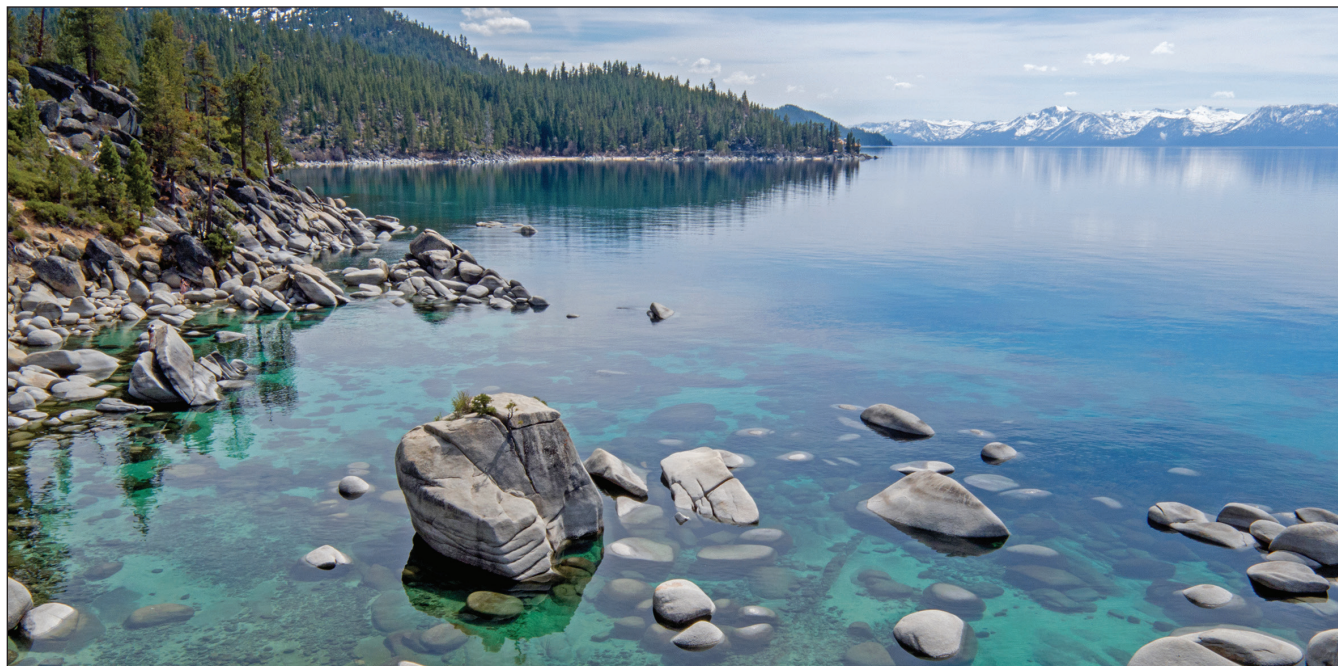


Photo: Lloyd Garden, Drone Promotions

4 individuals recognized for commitment to Lake Tahoe preservation

The Tahoe Regional Planning Agency in April presented Lake Spirit Awards to four people with a strong personal commitment to preserving Lake Tahoe.

Created in 2011, the awards recognize individuals whose passion for Tahoe results in environmental improvements.

This year's winners are:

Exemplary citizen

South Shore: **Ben Fish** is president of both the Tahoe Area Mountain Bike Association and Bijou Bike Park Association. Through his work, Fish has led hundreds of volunteers over thousands of hours to build and maintain bike trails around the lake while advocating for sustainable trail use. In addition to his advocacy for the mountain bike community, Fish was the impetus behind the Bijou Bike Park, which has quickly become a hub for recreation in the community. Fish works closely with a wide range of public and private partners to create projects that benefit the entire community.

North Shore: **Cyrus Miller** is an Eagle Scout candidate from Troop 228 of the Boy Scouts of America in the Bay Area. On one of his regular visits to the North Shore, he noticed a rusted pipe on the drought-exposed lakebed south of Tahoe City and decided to remove it for his Eagle Scout candidacy project. After seven months of planning with local



From left to right, TRPA Executive Director Joanne Marchetta, winners Beth Quandt, Benjamin Fish, Lisa Wallace, and Cyrus Miller, and TRPA Governing Board Chair Casey Beyer.

agencies and property owners, Miller and the rest of his troop spent two days last June removing the pipe section by section. The scouts removed 730 feet of old pipe and restored the lakebed.

Exemplary agency representative

South Shore: **Beth Quandt** works as the science program coordinator with the Lake Tahoe Unified School District. Quandt is the lead organizer for the South Tahoe Environmental Education Coalition (STEEC), which implements hands-on outdoor science programming in local schools.

With more than 20 local partners, the organization and leadership demonstrated by Quandt is critical in implementing science programs. Her passion for educating and inspiring local students to become stewards of their

environment is priceless. The programs that Quandt leads serve roughly 14,500 students, teachers, and volunteers each year.

North Shore: **Lisa Wallace** is executive director for the Truckee River Watershed Council. For 20 years, Wallace has worked to protect, restore, and enhance the Truckee River Watershed.

She has guided the council's efforts by implementing hundreds of projects, leading thousands of volunteers, and fostering public-private partnerships. Wallace also played a key role in the implementation of the Truckee River Operating Agreement, which affects all waterbodies and water users. This ability to build consensus across jurisdictional boundaries is critical to strengthening local communities and protecting the environment.

Kings Beach face lift nears completion

3-year project makes area more attractive, friendlier to pedestrians

By Jim Sloan
TAHOE IN DEPTH

An ambitious \$50 million revitalization of Kings Beach will enter its third and final year of construction this year, with work on the outermost east and west ends of the commercial core expected to be completed by November 2016.

The Kings Beach Commercial Core Improvement Project was launched with extensive planning and public involvement in the early 1980s and has been under construction since April 2014. The project involves sprucing up the downtown area and making it more safe, welcoming, and pedestrian and bike friendly while at the same time improving the area’s stormwater system to prevent fine sediments from entering the lake.

“The unprecedented community involvement resulted in a better project that best serves the needs of the community,” community organizer Theresa May Duggan said.

In 2014, crews completed two roundabouts at Bear Street and Coon Street and made improvements in the Kings Beach neighborhood “grid.” In 2015, project improvements were extended in both directions from Bear and Coon streets. Improvements included:

- Reducing Highway 28 from four lanes to two with a center-turn lane to reduce vehicle speeds, improve safety, and to make Kings Beach a place to come to, not drive through
- Improving crosswalks
- Adding sidewalks to improve access to businesses and pedestrian safety
- Adding bike lanes and racks to encourage cycling rather than driving
- Improving accessibility
- Adding new streetlights, bus shelters, trash receptacles, and benches
- Adding landscaping for downtown beautification
- Installing neighborhood traffic-calming measures

With the help of the North Tahoe Business Association, Kings Beach established an assessment district in which property owners that benefit most from the improvements tax themselves to cover maintenance costs,



The project improved the stormwater system to keep fine sediment from reaching Lake Tahoe. New sidewalks and lighting made the downtown more inviting.



including snow and trash removal, sidewalk cleaning, and landscape maintenance.

The business association also played a key role in helping businesses during the three years of construction by developing and distributing a “Tips for Success During Construction” guide, which is available online at www.NorthTahoeBusiness.org/construction-guide-for-businesses/, and an “Open for Business” marketing campaign, which drew visitors to Kings Beach during construction to reduce the impact on downtown businesses.

Kings Beach has always been known

North Tahoe Business Association fast facts

- Mission:** To improve economic vitality and quality of life in the communities of North Lake Tahoe.
- Purpose:** To support business through communications, marketing, resources, networking, and training. To create and market the district as vibrant and a unique sense of place.
- Scope:** Carnelian Bay to Crystal Bay with Kings Beach as the main commercial core
- Members:** 212
- Volunteers:** 100
- Activities:** 15 annual special events including July 3rd Fireworks & Beach Party and Music on the Beach

for its unparalleled natural assets, including abundant beaches, plentiful lake access, many recreational activities, and close proximity to shops and restaurants. Now, many businesses are reporting increased activity as word gets out about the new look of Kings Beach.

“If you’ve never been, or haven’t been in a while, now is the time to check out the new and improved Kings Beach,” North Tahoe Business Association Executive Director Joy M. Doyle said.

For a two-minute video showing the new improvements, search North Tahoe Business Association on YouTube or visit NorthTahoeBusiness.org.

Lake Tahoe water clarity in 2015 declines slightly

By Kat Kerlin
UC DAVIS

Clarity levels vary from year to year. Last year, clarity levels at Lake Tahoe declined in both summer and winter, according to researchers at the University of California, Davis.

Data released in early April by the UC Davis Tahoe Environmental Research Center (TERC) and Tahoe Regional Planning Agency reported the average annual clarity level for 2015 at 73.1 feet. That is the depth at which a 10-inch white disk, called a Secchi disk, remains visible when lowered into the water. This is a 4.8-foot decrease from the previous year but is still over 9 feet greater than the value of 64.1 feet in 1997.

The declines are not considered to be a long-term trend; they are part of the year-to-year variability that has always characterized conditions at Lake Tahoe. Lake Tahoe’s long-term trend of decline ended about 15 years ago. Since then, clarity has hovered around a value of 71 feet.

“While it is commonly believed that drought years produce clearer water conditions, the reality is more complicated than that,” TERC director Geoffrey Schladow said. “In 2015, both the lake and the runoff water into the lake were warmer on account of the low snow-to-rain ratio. As a consequence, fine particles flowed in closer to the surface, where they impacted clarity, rather than plunging to the deeper parts of the lake.”

The clarity level is the average of 30 individual readings taken throughout the year. The highest value recorded in 2015 was 86.5 feet on April 22, and the lowest was 59.9 feet on Feb. 3.

Researchers provided measurements for both winter (December–March) and summer (June–September) months. Winter clarity last year declined by 7.6 feet. The winter average of 71.6 feet was well above the worst winter average, 66.6 feet, seen in 1997.

For the summer clarity, there was a 3.7-foot decline over the preceding year, with an average value of 73.0 feet.

Most years, summer clarity is poorer than winter clarity, but 2015 was an exception. The lack of deep mixing during the winter resulted in very little of the pristine, deep water being brought up to the lake surface to dilute the clarity-reducing contaminants. Despite this, the long-term decline in summer conditions is still a major concern.

The Tahoe Regional Planning Agency leads the collaborative effort to reduce stormwater runoff and manages the multijurisdictional Lake Tahoe Environmental Improvement Program to repair past damage to the ecosystem.

Over the past two decades, the Environmental
Continued on page 18



Aeration punches holes in the lawn to allow air, water, and nutrients to reach the roots.

When is the best time to apply fertilizer to lawn?

Fertilize in the spring after the snowpack has melted or late summer or early fall. Fertilizer applied when the grass is not actively growing will move beyond the root zone before it can be used. Here are some additional tips:

- Do not spread fertilizer if rain is predicted
- Sweep up fertilizer that accidentally lands on paved surfaces.
- Irrigate to soak 6 to 8 inches into the ground. If you see runoff or pooling water, turn off the water and allow the soil to absorb excess water.
- Aerate compacted lawn. High-use areas may be compacted and need to be aerated. Aerating the lawn punches holes in the soil to allow air, water, and nutrients to reach the roots.
- Don't use fertilizers in or near water, including shorezones and stream environment zones.
- For more information check out "Home Landscaping Guide for Lake Tahoe and Vicinity" at www.unce.unr.edu/publications/files/nr/2006/eb0601.pdf

Think twice before fertilizing

Applying too much, or at the wrong time, can harm the lake

By Angela Stevens

TAHOE REGIONAL PLANNING AGENCY

As summer approaches in the Tahoe Basin, people naturally start looking at their yards and wondering what they should do to make that grass grow thick and green.

Many Tahoe homeowners and residents in recent drought years have opted to replace their lawns with native or drought-tolerant landscaping that saves water by needing less irrigation. Those who have kept their grass might be thinking it's time to apply fertilizer to keep that yard looking healthy.

Think again!

Many of us unknowingly waste time and money by putting too much fertilizer on our plants and lawns, often at the wrong times. Fertilizers contain nitrogen, phosphorus, and potassium (N-P-K), the primary nutrients for plant growth. All plants need an appropriate balance of essential nutrients, but applying fertilizer doesn't always mean a healthy green lawn, and there can be consequences for Lake Tahoe.

Why fertilizer can be a problem

Lake Tahoe is naturally oligotrophic (nutrient-poor) due to the geology in the Basin. This contributes to the lake's remarkable water clarity. Water bodies require some nutrients to be healthy, but too much can be harmful. Human-caused disturbances such as urbanization, accelerated erosion, fertilizer use, and stormwater runoff have caused nitrogen and phosphorus to become unnaturally abundant in the lake.

In Lake Tahoe, algae growth is limited by the available supply of phosphorus. Excess phosphorus in the lake feeds the growth of algae and periphyton (attached algae). Increased algae growth decreases the water quality and lake clarity. The water can become green and cloudy, blocking light and depleting oxygen for fish and aquatic plants. Algal blooms can have an unpleasant odor and appearance that reduce the aesthetic quality and alter the ecology of Lake Tahoe.

Fertilizer, when it is overused, overwatered, or spilled onto paved surfaces or bare soil, can end up in



Photos: Tahoe Regional Planning Agency



At Lake Tahoe, algae growth is limited by the available supply of phosphorus. Too much phosphorus in the lake feeds the growth of algae and periphyton, also known as attached algae. Increased algae growth decreases the water quality and lake clarity and can foul the shoreline.

the lake. Fertilizer typically finds its way into Lake Tahoe when irrigation, rain, or melted snow picks it up as the water flows over driveways, sidewalks, streets, or parking lots. This runoff delivers debris, dirt, road sand, fine particles, nutrients, and other pollutants, which flow directly into storm drains, streams, rivers, and Lake Tahoe.

What you can do

You can help prevent fertilizer from reaching the lake by planting native or adapted vegetation instead of a lawn. Lawns can provide defensible space, erosion control, and play areas for children and pets, but these grassy areas tend to be overfertilized and overwatered. Many other combinations of trees, shrubs, and groundcover can achieve the same erosion-control benefits while using less water.

Generally speaking, lawns need much less fertilizer than is advertised. To find out exactly what your lawn needs, have your soils tested for pH and nutrient levels. Tahoe soils contain plenty of phosphorus, so choose a fertilizer that doesn't have any. Fertilizer labels will have a nutrient ratio for N-P-K, so choose a fertilizer with a middle number of 0, or ask your landscaper to use phosphorus-free fertilizer.

Choose alternatives: instead of synthetic fertilizers, select slow-release, organic fertilizers or organic compost. Synthetic fertilizers are more concentrated than organic ones, which makes it easier to overfertilize. This can burn vegetation and harm soil organisms. Synthetic fertilizers also tend to be more water-soluble, leaching out of the soil faster.

Angela Stevens is an associate environmental specialist at TRPA.

Gauging the health of Tahoe tributaries

The environmental quality of streams helps determine if Tahoe is meeting its environmental goals

By **Tom Lotshaw**
TAHOE REGIONAL PLANNING AGENCY

Wading in the Upper Truckee River in South Lake Tahoe, Sean Tevlin and Tiffanee Hutton run fine mesh nets through the water to collect benthic macroinvertebrates, insects that live on the bottom of streams and require clean water and good habitat.

Populations are poor, even in shallow riffles where they should be thriving. Instead of stoneflies, mayflies, caddisflies, and other indicators of healthy Sierra streams, they find mostly blackfly larvae, a species more tolerant of pollution and degraded stream conditions.

Assistant environmental specialists for TRPA, Tevlin and Hutton waded 150 meters of the Upper Truckee River, Lake Tahoe’s largest tributary, and one of its largest contributors of clarity-robbing fine sediment.

They assess the river’s habitat conditions and aquatic life, measure water temperature, flow, and depth, and make extensive notes about its physical attributes, such as riparian vegetation and substrate size.

This span of river in the meadows near Highway 50 is in marginal condition. There’s heavy channelization, bank erosion, and a layer of fine sediment carpeting the bottom. Water temperatures are high. Similar to the insect life, fish habitat and populations are lacking.

Lingering impacts from cattle grazing and logging decades ago are partly to blame for degrading the stream. But urban stormwater runoff from the highway and the nearby Sierra Tract neighborhood also discharges directly into the river, something the City of South Lake Tahoe and Caltrans are working to address with water quality improvement projects.

Downstream, the California Tahoe Conservancy is planning a broader project to restore the Upper Truckee Marsh. It’s the largest remaining marsh in the Tahoe Basin and its restoration would greatly benefit the Upper Truckee River’s water quality and habitat.

“It’s sad to see poor-quality sections of streams in a beautiful environment



Photos courtesy Tahoe Regional Planning Agency



Researchers take measurements from a variety of tributaries, from the Upper Truckee River (top photo) to smaller and more remote streams in the Tahoe Basin.

like Tahoe, but it shows just how far we have to go to get where we want to be in terms of stream health,” Tevlin said.

Lake Tahoe’s mid-lake water clarity measurements get lots of attention as a key indicator of water quality and environmental health. But regular monitoring of the 63 streams that flow into Lake Tahoe also provides important information about water and habitat quality, plant and animal populations, and overall watershed health.

Tevlin leads TRPA’s stream bio-assessment program. Each year from June through September, Tevlin and his assistant assess the health of randomly selected sections of Tahoe’s tributaries. They range from remote, rugged streams with raging whitewater to small backcountry trickles and streams

through golf courses and urban areas.

Information from the assessments helps measure the success of stream restoration projects, water quality improvement projects, and conservation measures. It also helps determine whether Tahoe is meeting the mandate to attain and improve threshold standards for things such as water quality and fish habitat.

Tevlin estimates about one-quarter of Tahoe’s tributaries are in marginal condition. The rest are in good or excellent condition.

Streams in the Tahoe Basin can face many challenges. During the last four years of drought, many streams have seen low water levels and high water temperatures lethal to fish. Other common issues include erosion,

Stream channels restored or enhanced

- 2010: 2,780 feet
- 2011: 8,207 feet
- 2012: 13,117 feet
- 2013: 1,570 feet
- 2014: 1,000 feet
- 2015: 1,601 feet

Source: Lake Tahoe Environmental Improvement Program Project Tracker

sedimentation, stormwater pollution, invasive species, and culverts that block fish passage. In a 2010-11 survey of 218 stream structures on public land in the Lake Tahoe Basin, including old culverts and dams, the U.S. Forest Service found 64 percent are impassable to fish.

“Compared to the rest of California and Nevada, our streams are pretty good. But for the relatively pristine environment we have, there are a lot of issues,” Tevlin said.

Tevlin hopes to see overall stream health improve because of the stream restoration projects that agencies have completed and other projects in planning. “A lot of sites are falling in areas that have been restored or are going to be restored, so we should see the trend line improving. But it will take time,” Tevlin said.

And as the health of Tahoe’s tributaries improves, the water quality, clarity, and health of Lake Tahoe will benefit as well.

Tahoe clarity readings

Continued from page 15

Improvement Program has resulted in substantial public and private investment in projects to improve water quality and other environmental indicators at Lake Tahoe. Among the hundreds of measurements the TRPA tracks, mid-lake clarity is a key indicator of whether restoration programs are working.

"We are pleased to see that our extensive work to reduce stormwater pollution into Lake Tahoe has contributed to stopping the long-term decline in its water clarity," said Joanne S. Marchetta, executive director of Tahoe Regional Planning Agency. "TRPA will continue to work with scientific researchers and other agencies to better understand the dynamics of lake mixing and climate influences, and work toward the best solutions to restore Tahoe's famed clarity."

Water clarity measurements have been taken continuously since 1968, when the Secchi disk could be seen down to 102.4 feet, and is one of the longest, unbroken clarity records in the world. Secchi depth is the most widely used method of clarity measurement, and the values are in agreement with the laser-based measurements that are also taken by TERC researchers.

Improved real-time monitoring instruments, together with sophisticated models of the lake currents that transport contaminants in Lake Tahoe, are helping researchers build a deeper understanding of restoration progress within the entire lake ecosystem.

"The Secchi depth is but one indicator of Lake Tahoe's ecological health, albeit a very good one," Schladow said. "The extreme conditions in 2015 are also impacting other parts of the system such as the nearshore zone. Separating out what is a long-term change from the expected year-to-year variability for all aspects of the lake is a major challenge for researchers."

While the average annual clarity in the past decade has been better than in preceding decades, it is still short of the clarity target of 97.4 feet set by federal and state regulators.

Annual Average Clarity readings since 2007

- 2015: 73.1 feet (22.48 meters)
- 2014: 77.9 feet (23.74 meters)
- 2013: 70.1 feet (21.36 meters)
- 2012: 75.3 feet (22.9 meters)
- 2011: 68.9 feet (21 meters)
- 2010: 64.4 feet (19.6 meters)
- 2009: 68.1 feet (20.8 meters)
- 2008: 69.6 feet (21.2 meters)

More information about environmental factors affecting Lake Tahoe will be included in the 2015 State of the Lake Report, expected this summer.

Funding for TERC's clarity analyses comes from TRPA and UC Davis.

Kat Kerlin is an environmental content provider at UC Davis.

Tahoe's tap water clearly the best

Lake's natural purity shows through when you turn on the faucet

By Kurt Althof

TAHOE CITY PUBLIC UTILITY DISTRICT

Tahoe residents and visitors can enjoy some of the highest-quality water in the country, right out of the tap. Water providers around the Lake Tahoe Basin deliver tap water that is not too far removed from drinking pure, freshly fallen, mountaintop snow. In fact, Glenbrook Water Cooperative on the East Shore of Lake Tahoe just won the gold medal for "Best Tasting Water in the Country" at the 2016 Great American Water Taste Test.

The Glenbrook Water Cooperative is a founding member of the Tahoe Water Suppliers Association, which encourages residents and visitors to go without bottled water, and, instead, "drink Tahoe tap."

Tahoe tap water, unlike many communities', does not have to travel miles and miles from its origin, or undergo extensive processing. The Lake Tahoe Basin, as a self-contained watershed, creates a natural catchment area that, when water falls from the sky, captures the precipitation and funnels it directly into the lake or into underground aquifers after it is naturally filtered by soil.

Water providers around the basin source their water in two ways: either from springs and wells or via an intake from the lake itself. Either way, the water is only one step removed from Mother Nature's tap.

Whether Lake Tahoe or wells are the water source, Tahoe tap water is some of the best in the world. Groundwater and spring water are regularly tested to meet state and federal safe drinking water standards. Often, groundwater does not require additional treatment. Water taken from Lake Tahoe itself is also highly regulated and tested to meet or exceed the state and federal water quality requirements. Lake Tahoe surface water historically shows little to no detection of contaminants. However, by law, surface water must still undergo disinfection treatment to remove viruses or bacteria.

There are three types of treatment processes used at Lake Tahoe to disinfect lake source water: ozone, ultraviolet



Photo: Meeks Bay by the_tahoe_guy / CC BY-NC-SA 2.0

Tahoe tap water comes from wells or from the lake itself and is considered some of the best-quality tap water in the world.

light (solo or in combination), or filtration. These processes ensure there are no live viruses or bacteria being delivered to your tap.

Water source is critically important when it comes to high-quality, contaminant-free water, but source isn't everything. The distribution system also plays a key role in providing exceptional tap water.

A municipal water system is made up of several parts: wells, storage tanks, treatment plants, and pipelines — and then the private portion which includes the service line that connects your home or business to the main water line and the pipes and faucets at your property.

All Tahoe water purveyors ensure their systems are in optimum condition by performing regular maintenance on all facilities, hundreds of precautionary water-quality tests annually, and the use of trace amounts of chlorine to maintain a hygienic distribution system.

Chlorine is often the most objectionable part of water system maintenance and distribution, but what many people don't understand is how little is required to maintain consistent public health and safety. For example,

a concentration of 0.5 parts per million (ppm) of chlorine is equivalent to one single drop in 26.4 gallons of water. This is not to say it is never noticeable, but occasionally detecting a hint of it in a taste profile provides enormous protection for the system without any health concerns.

Chlorine will naturally evaporate if you fill a pitcher and allow it to sit out. Also, a simple carbon block filter, such as a Brita or PUR filter, can effectively remove any last traces of chlorine and will address any related concerns about potential lead solder in older plumbing.

Finally, when compared to bottled water, there is no comparison. Municipal water systems are far more rigorously tested and monitored than the bottled water industry. Tahoe has some of the best water in the world and we tap the source directly. Skip the waste and the cost of the plastic bottle and enjoy some of the best water around. DRINK TAHOE TAP. To learn more, visit www.TahoeH2O.org.

Kurt Althof is the grants and community information administrator for the Tahoe City Public Utility District.

Tahoe Fund launches new venture trust

Nonprofit to seed environmental projects with philanthropic dollars



Photo: Amy Berry

Donors provided funding for the early restoration work of the Flume Trail near Incline Village.

By Amy Berry

TAHOE FUND

Taking a page from the playbook of venture capitalists in Silicon Valley, the Tahoe Fund has announced plans to create an Environmental Venture Trust to seed early stage environmental improvement projects at Lake Tahoe with philanthropic capital. Unlike traditional venture capital, the return on investment for the trust will be purely environmental and not financial. The Environmental Venture Trust will help kick-start projects with seed funding to reduce project timelines and to better prepare them for future investments.

This is a new initiative for the Tahoe Fund, which is focused on raising private funds for environmental improvement projects that help restore lake clarity, improve outdoor recreation, and inspire greater stewardship of Lake Tahoe.

“We see a lot of great projects sit on the sidelines because they can’t find the initial funding to get things started,” said Art Chapman, chair of the Tahoe Fund. “With this innovative approach to philanthropy, we think we can give life to a lot of great projects that will have a tremendous impact on the long-term health of Lake Tahoe.”

Traditionally, the Tahoe Fund supports late-stage projects to close funding gaps or act as a required match for public funding. For example, supporters of the Tahoe Fund leveraged a \$12.5 million federal grant for a new bike path from Incline to Sand Harbor with more than \$1 million in donations. These late-stage projects will continue to be the main focus of the Tahoe Fund.

The new venture trust program was inspired by donors who expressed interest in funding worthy early-stage projects that need help getting off the ground. For instance, donors provided the early funding for the regional stewardship campaign, Take Care, and for the early restoration work of the Incline Flume Trail. The Tahoe Fund acknowledges that the Environmental Venture Trust carries a higher level of risk than its standard funding model. Donors comfortable with this approach will be able to direct funds to the trust specifically for this purpose.

By providing seed funding to early stage projects, the risk exists that these projects may not make it to the finish line. It is a risk the board feels is worth taking.

“If we can take some small bets on a series of projects, we think we can see

some significant gains for Tahoe,” said Tahoe Fund board member and venture capitalist Steven Merrill. “It is time to take this successful funding model from the business world to the philanthropic world to see how we can move the needle for our environment.”

The Tahoe Fund Projects Committee will identify projects and vet their potential and risk once the new Environmental Venture Trust achieves its initial campaign goal of \$100,000 in donations. Information on how to submit a project for consideration will be made available at that time.

The Tahoe Fund will announce its 2016 Premier and Signature projects in early summer.

They will include opportunities for private donors to help acquire 200 acres of property on the Basin’s most impaired watershed, construction of a new overlook at the Basin’s most visited interpretive center, trail reconstruction on one of Tahoe’s favorite hiking trails, and a new section of the Lake Tahoe Bikeway.

Donors interested in contributing to the Environmental Venture Trust or one of the Premier or Signature projects can email info@tahoeFund.org or call Amy Berry, CEO at 775-338-1668.

California water bond funds going to several Tahoe projects

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

High-priority watershed and forest health projects at Lake Tahoe are seeing a boost in funding from the Proposition 1 water bond California voters approved in 2014. In March, the California Tahoe Conservancy Board of Directors awarded seven Tahoe projects more than \$7.1 million in Proposition 1 funding, including:

Johnson Meadow Acquisition: \$4.23 million for the Tahoe Resource Conservation District to help acquire the largest privately-owned meadow in the Tahoe Basin, a key segment of the large-scale plan to restore the Upper Truckee River.

Lake Tahoe Basin Wildlife Protection and Water Quality Enhancement Project: \$850,000 for Lake Valley and North Tahoe fire protection districts to develop a plan to streamline permitting for forest health projects surrounding Tahoe’s urban and residential communities.

Lake Tahoe West Collaborative: \$849,100 for the National Forest Foundation to develop a landscape level plan to create resilient forests and watersheds between Emerald Bay and Tahoe City.

Lake Tahoe Invasive Plant Control Project: \$700,000 for the Tahoe Resource Conservation District to remove aquatic invasive plants at several high-priority South Shore locations.

Meeks Meadow Restoration: \$228,530 for the Washoe Tribe to support planning for restoration of the ecological, hydrologic, and cultural functions of Meeks Meadow.

Tahoe Storm Water Resource Plan: \$150,000 for the Tahoe Resource Conservation District for a water-quality plan to reduce and treat runoff that degrades Lake Tahoe’s water clarity.

Antone Meadows Dam Removal and Restoration: \$149,938 for California Department of State Parks to plan activities to restore sections of Burton Creek and remove the Antone Meadows dam and related infrastructure.

All of the projects support key elements of the Lake Tahoe Environmental Improvement Program (EIP), a collaborative, multi-agency initiative to implement projects that restore and protect Tahoe’s environment and enhance public recreation opportunities.

“These awards demonstrate California’s continuing commitment to the EIP and Lake Tahoe Basin,” said Patrick Wright, executive director of the California Tahoe Conservancy. “They will help improve the clarity of the lake, the health of our watersheds, and the quality and resiliency of our forests.”

Proposition 1 funding will continue to benefit Tahoe projects this year. The California Tahoe Conservancy has about \$6.9 million in remaining funding that it plans to award over the next year, and will pursue additional funding for upcoming years to help pay for EIP projects.

Tom Lotshaw is public information officer at TRPA.

Land donation will help with the Other Flume Trail

By Karen Mullen-Ehly
NEVADA LAND TRUST

The critical first step toward future public ownership of 18.6 acres of land near Incline Village has been taken with the donation by Cheryl and David Duffield of the property to Nevada Land Trust.

This gift of land provides the missing link needed to connect the 7-mile trail known as the Incline Flume Trail from Mount Rose Highway all the way to Tunnel Creek.

"We are very pleased to give this land to Nevada Land Trust so that it may lead to a terrific community trail and to long-term public ownership of the iconic Incline Bull Wheel," David Duffield said.

For years, many have hoped to see this section of trail in public ownership. The Nevada Land Trust will work with a number of private and public partners to move the property into public ownership over the next two years.

"We are grateful to Cheryl and David Duffield for their very generous donation of this important part of Nevada's past and a vital link in the trail system. We'll realign and restore this section of trail to better protect the historic area and the natural environment to prepare for public use," said Alicia Reban, Nevada Land Trust executive director.

The property is adjacent to U.S. Forest Service land and the area has many user-created trails. "With plans being developed to improve this portion of the trail, we look forward to enhancing public access along the network of trails in the area," Jeff Marsolais, Lake Tahoe Basin Management Unit forest supervisor, said. "Collaboration among property owners to ensure protection of the historic Bull Wheel structure will continue."

"This phenomenal gift not only brings the community closer to having the historic site for which Incline Village is named under public ownership but it will also provide a backcountry trail that young and old can enjoy and we all know in Incline Village that is a rare opportunity," Washoe County Commissioner Marsha Berkgigler said.

With the Bull Wheel property now in the hands of the Nevada Land Trust, work can begin to realign this new trail link.

"We have been working behind the scenes for years to put the pieces in place to restore and improve the entire Incline Flume Trail. Until now, that was all wishful thinking," said Sue Hughes, project partner of Friends of Incline Trails. "Thanks to the Duffields,

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Amgen Tour spotlights Tahoe cycling



Photo: Lake Tahoe Visitors Authority

Cyclists race past Emerald Bay during a previous stage of the women's Amgen Tour of California.

Men riders finish in South Tahoe while women will circle the lake

By Carol Chaplin
LAKE TAHOE VISITORS AUTHORITY

Lake Tahoe is on the map as a national cycling destination, whether it's road biking, navigating mountain trails, or lapping the BMX bike park. Tahoe attracts everyone from casual outdoor enthusiasts to elite athletes.

Many organizations and groups have come together to expand cycling as a major recreational activity at "America's Best Lake." With hard work and leveraging public-private partnerships, the Lake Tahoe community has been able to open new bike paths, add signage, bike parks, annual rides around the lake – and special events like the Amgen Tour of California.

This year the Amgen Tour of California will be in Lake Tahoe on May 19; the women will race around the lake, starting and finishing at Heavenly Mountain Resort, and the men's Stage 5 race that begins that morning in Lodi, California, will also finish at Heavenly later that day. The races will be televised by NBC Sports.

South Lake Tahoe and partners delivered a successful two days of the Amgen Tour of California women's first and second stages last year. The men were scheduled to race at Lake Tahoe in 2011 until an unexpected snowfall forced race officials to cancel the men's Stage 1 start that year.

The men's elite race Stage 5 will

begin in Lodi, California, and finish at Heavenly Mountain Resort's California Base Lodge in South Lake Tahoe, totaling 132.4 miles. The finish for the men will include a new route that highlights spectacular backcountry terrain through Hope Valley.

The women's Stage 1 will involve approximately 160 female athletes racing a clockwise 72.7-mile lap around the perimeter of Lake Tahoe.

The climb along the West Shore overlooks iconic Emerald Bay and Cascade Lake, and continues along the scenic shoreline into Tahoe City. The peloton proceeds through Kings Beach before entering Nevada and passing through Crystal Bay and Incline Village. Athletes will experience the breathtaking views above Sand Harbor while racing continues east with a 1,000-foot ascent to U.S. Highway 50 near Spooner Lake. Racers then descend into Zephyr Cove before embarking on a climb back into South Lake Tahoe as they near the finish.

The women's race kicks off the Union Cycliste Internationale Women's World Tour, which is the world's leading series for professional women cyclists.

The men's races feature around 200 athletes. The course from Lodi will travel over State Route 88, passing Kirkwood Mountain Resort. The men will endure challenging hairpin turns and climbs passing several alpine lakes before reaching Hope Valley between

Kirkwood Mountain Resort and South Lake Tahoe.

They will then turn at Pickett's Junction onto State Route 89, with a breathtaking ascent to the 7,740-foot summit of Luther Pass and then a steep descent into the Tahoe Basin. Featuring a long day of climbing, the stage will reach the highest elevation ever mounted by the race at 8,600 feet.

The South Lake Tahoe Local Organizing Committee is seeking 300 volunteers for the combined stages for men and women. Volunteer registration is now open at www.amgentourofcalifornia.com/Tour/volunteer.

Local law enforcement and race and tourism officials created routes with the least impact to residents and visitors. Travelers should expect 20-minute delays along the courses while they are passing through.

Specific road information will be available at www.tahoesouth.com. Road delays are unavoidable for high-profile events like this that do so much to raise the awareness of cycling and of Lake Tahoe as a premier cycling destination.

The May 15-22 race spans nearly 800 miles between 12 host cities through California's breathtaking roads and scenery and boasts international TV coverage.

Carol Chaplin is the executive director of the Lake Tahoe Visitors Authority.

A new face at the front counter

Aly Borawski takes over as Gary Weigel retires after 10 years greeting TRPA visitors

By Tom Lotshaw

TAHOE REGIONAL PLANNING AGENCY

After a decade at TRPA's front counter working through countless customer calls, questions, projects, and permit applications, senior planner Gary Weigel retired this April, having spent the last six months training and preparing Aly Borawski to take over the job.

Weigel is the longest-serving front counter planner in TRPA's history. That's no small feat given the job's challenging nature and the needed amount of expertise and eagerness to help the public.

Weigel applied for the front counter job in 2005. He was looking for "a new challenge" after a 30-year career with the U.S. Forest Service, and a new challenge it was, even though Weigel was no stranger to public service.

In his career with the Forest Service, Weigel worked as a wildland firefighter with a hot shot crew and as the recreation program manager for Shoshone National Forest in Wyoming. He transferred to the Lake Tahoe Basin Management Unit in 1988 and was involved with the recreation, trails, special uses, and lands management programs.

"Stepping into my position with TRPA was a huge leap. Understanding TRPA's role, its ordinances, how it works internally and externally, and how you bring it all together to make things happen and potentially make change took time," Weigel said.

One unintended consequence of TRPA's mission to protect Lake Tahoe is a complex array of ordinances, regulations, and processes that can be challenging for even the most well-informed consultants and property owners to navigate.

Weigel knew about the difficulties he would face headed into the job at TRPA. But looking down at the front counter at the Forest Service from his office one last time before leaving, he fully recognized that it, like TRPA's front counter, is a place where important interactions occur, and an opportunity to have positive contact with the public and make good change.



Gary Weigel trains Aly Borawski at the front desk at TRPA. Weigel, the longest-serving front counter planner in TRPA's history, retired in April.

That's what Weigel worked to do at TRPA. He worked with one customer at a time to make helpful knowledge about the agency's ordinances and regulations easily accessible and understandable and helped people navigate through the permitting process and find solutions to benefit their projects and the health of Lake Tahoe.

"The front counter is there to serve people. In order to make headway for people to understand and appreciate TRPA's role, people need to be able to get information that will help them, be of service to them, and provide a path to achieve their goals, whether it be buying a house, fixing something up, or building a resort," Weigel said.

Through Weigel's thousands of customer interactions over the past decade, attitudes about TRPA and its service have improved over the years. "Overall it's been a remarkable experience. I can see results. It's taken a while. It is one person at a time trying to make that change," Weigel said.

As Weigel retires and prepares to travel with his wife Mary, do some extra volunteer work with his church groups, and spend the next year or so contemplating what he wants to do next, he's confident TRPA's new front counter planner, Aly Borawski, has the knowledge and people skills needed to

keep that progress going.

Borawski is a 2005 graduate of University of California, Berkeley, where she studied landscape architecture.

"I think they have the right person with the right attitude and demeanor," Weigel said.

"Aly has a heart for helping people. She's technically savvy. She's young, vibrant, creative, and can apply technology to move the front counter forward. She's smart, dynamic, she has a great smile and a wonderful attitude. She's got all of the needed qualities, but it is still going to be a challenge."

Borawski said she's grateful for the mentoring Weigel has provided and is ready to take on those same challenges he faced a decade ago. Continuously improving customer service at TRPA's front counter is her top goal.

"I really like working with the public and helping people, so I'm enjoying that aspect of it," Borawski said.

"I need to learn one million things and I think I have 150 down. I'll never be able to fill Gary's shoes, but I just hope to one day become as knowledgeable. I look forward to helping applicants complete their projects and protect Lake Tahoe."

Tom Lotshaw is public information officer for TRPA.

Permitting assistance "Welcome Mat"

Complicated and overlapping permitting processes make getting permits for projects at Lake Tahoe challenging and time consuming. That's why TRPA is working with local governments around the lake to create a coordinated permitting assistance "Welcome Mat" program.

The goal is to improve regulations, enhance the consistency and predictability of the permitting process, and help people work through that process to encourage beneficial environmental redevelopment projects at Lake Tahoe.

More information about the "Welcome Mat" is available online at <http://bit.ly/1WDFtPB>.

The Other Flume Trail

Continued from page 20

we have the missing link and can finally move toward completion and official designation for this wonderful trail."

The Incline Flume Trail starts near the Incline Lookout on Mount Rose Highway and runs south through Diamond Peak Ski Resort before hitting the newly donated land and continuing on to Tunnel Creek. This trail is sometimes known as the "Other Flume Trail" to distinguish it from the Flume Trail that runs 14 miles from Tunnel Creek south past Marlette Lake to Spooner Lake.

"The Incline Flume Trail is the most family-friendly backcountry trail in the Basin. It offers spectacular views and connects with so many other trails in the area, but it needs restoration and signage," said Tahoe Fund CEO Amy Berry, one of the project partners. "We look forward to working with the Nevada Land Trust and the Friends of Incline Trails to raise the funds needed to get the trail improved for our community and our environment."

With Nevada Land Trust focused on the trail realignment and protection programs on the land it now owns, the broader campaign to get the trail reconstructed is being led by the Friends of Incline Trails with support from the Incline Tahoe Foundation and the Tahoe Fund. Anticipated work includes some trail widening, erosion control, minor trail reconstruction, and installation of educational and way-finding signs. For more information: www.inclinetrails.org/incline-flume-trail-project. For more information on the Nevada Land Trust, visit www.nevadalandtrust.org.

Karen Mullen-Ehly is secretary of the Nevada Land Trust.

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Ruby makes a special delivery.

What readers are saying:

Thank you for your excellent publication. We’ll be traveling to South Lake Tahoe in early January like we do several times during the year. We plan to drive from the Reno airport directly to the Nevada Museum of Art to see the “Tahoe: A Visual History” exhibit you featured in your current edition. Keep up the good work.

— M.A. La Jolla, California

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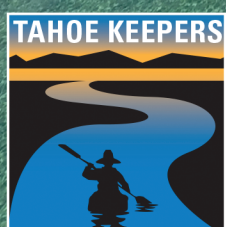
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USFS begins winter travel management plan for Tahoe

By Lisa Herron

U.S. FOREST SERVICE

Many may not remember the 1960 Winter Olympics at Squaw Valley, but it turned the spotlight on Lake Tahoe as a winter destination.

Lake Tahoe receives nearly 6 million visitors annually and many come to enjoy winter recreation — skiing, snowboarding, snowmobiling, cross-country skiing, snowshoeing, sledding, tubing, backcountry skiing/boarding and more. Many of these activities occur on National Forest land. About 154,000 acres of public land at Tahoe are managed by the U.S. Forest Service Lake Tahoe Basin Management Unit (LTBMU), and this fall and winter the LTBMU will start a comprehensive analysis of winter recreation at Tahoe, including parking, over-snow vehicle (OSV) use, and backcountry access.

For decades, the LTBMU designated OSV use through a series of Winter Vehicle Restriction Orders. In 2013, the LTBMU began working with many user groups to come up with a proposal for the winter travel management process. Many issues and opportunities were identified and in January 2014, the intent to develop a winter recreation program was announced.

In March and April 2016, the Forest Service held three open houses and invited the public to submit comments about the upcoming Winter Travel Management Plan. Interested parties reviewed the current Snowmobile Guide and submitted input on this planning initiative. The Forest Service will now review the comments and a proposed action will be developed and announced in the fall/winter of 2016.

The next steps of the formal process will offer the public more opportunities for input. Keep in mind that during the planning process, existing winter recreation opportunities, including OSV use, will not be modified and new special-use applications for winter uses will not be considered until the planning process is complete.

If you would like more information about the Winter Travel Management Planning process, visit <http://www.fs.usda.gov/goto/lbtmu/WinterTravelMgmt>. If you would like more information about winter recreation on National Forest land in the Lake Tahoe Basin, the Lake Tahoe Basin Management Unit Forest Supervisor's Office, located at 35 College Drive in South Lake Tahoe, provides a year-round source of information and is open Monday through Friday from 8 a.m. to 4:30 p.m.

Lisa Herron is a public affairs specialist for the U.S. Forest Service.

Heavenly becomes outdoor classroom

Fifth-graders explore winter habitat from the top of the tram

By Devin Middlebrook

TAHOE REGIONAL PLANNING AGENCY

Through a new educational program spearheaded by the Tahoe Regional Planning Agency and other basin partners, Lake Tahoe Unified School District students this year took full advantage of winter to learn about avalanche safety, winter animal survival, and the science of snowmaking.

During five program days this winter, 305 fifth-grade students participated in the newly created Epic Winter Adventure Program. Taking place at the top of the tram at Heavenly Mountain Resort, students strapped on snowshoes and explored the winter habitat overlooking Lake Tahoe. The goal of the program is to teach students about Tahoe's winter environment and mountain safety in an effort to inspire the next generation of environmental stewards.

"Heavenly is fortunate to be able to partner with local organizations, including schools, educational coalitions, and non-profits, to provide a wonderful educational setting where local students can learn first-hand on the snow," said Pete Sonntag, the vice president of Heavenly. "This new program gets every fifth-grader on the mountain and connected with our unique Lake Tahoe ecosystem. The EpicPromise Grant Program is a great avenue for us to provide funding for this valuable curriculum."

At the avalanche station, experts from the Sierra Avalanche Center taught students the science behind avalanches, including how to dig a snow test pit, and the principles behind "know before you go." The students also received a safety talk from Heavenly ski patrol staff and got to meet some of the avalanche search and rescue dogs.

The Tahoe Institute for Natural Sciences taught students about the different techniques animals use to survive harsh winter conditions, adaptation strategies, and how to identify animal tracks in the snow. During the program, students found and identified tracks from a variety of species, including coyotes, squirrels, and birds.



The students learn about snowmaking and environmental restoration projects during the Epic Winter Adventure Program

Lastly, Heavenly and Tahoe Regional Planning Agency staff taught students about the science of snowmaking and environmental restoration projects on the mountain. Students learned how to take key measurements, such as temperature and humidity, and determine if snowmaking was possible on that day. Students also had the opportunity to see and touch the snowmaking equipment up close.

"Many of my students have never walked on snowshoes or been to the top of Heavenly," said Gina LoCicero, fifth-grade teacher at Bijou Elementary School. "It is invaluable for my students to gain new experiences and learn about Tahoe outside of the classroom."

The South Tahoe Environmental Education Coalition developed and

implemented the program. The coalition is a network of local agencies and organizations that bring environmental education to schools on the South Shore of Lake Tahoe, reaching thousands of students every year.

TRPA secured funding for this educational program through the Vail Resorts EpicPromise Grant. Program partners included Heavenly Mountain Resort, Lake Tahoe Community College, Lake Tahoe Unified School District, Sierra Avalanche Center, South Tahoe Environmental Education Coalition, Tahoe Institute for Natural Sciences, and U.S. Forest Service Lake Tahoe Basin Management Unit.

Devin Middlebrook is the environmental education specialist at the Tahoe Regional Planning Agency.